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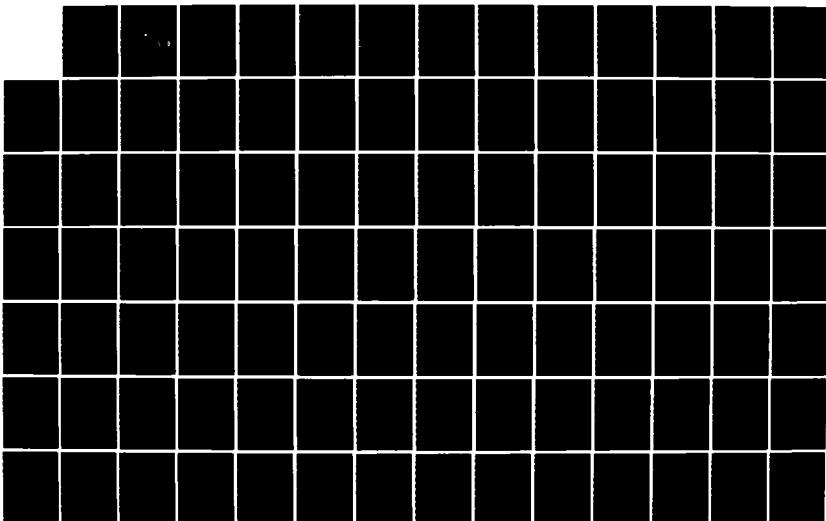
DEVELOPMENT OF THE MARINE CORPS LOGISTICS BASE ALBANY
REPLENISHMENT SPARE PARTS BREAKOUT PROGRAM(U) NAVAL
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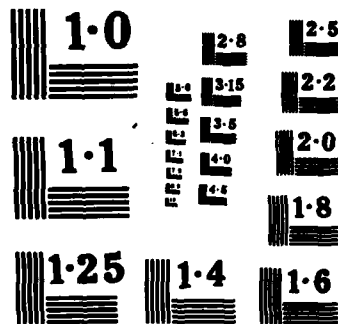
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DEVELOPMENT OF THE MARINE CORPS LOGISTICS
BASE ALBANY REPLENISHMENT SPARE
PARTS BREAKOUT PROGRAM

by

William Frederick Johnson

December 1984

Thesis Advisor:

David V. Lamm

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The major contribution of this study was the prescription of an effective replenishment spare parts breakout program for MCLB Albany, Georgia.

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Development of the Marine Corps Logistics
Base Albany Replenishment Spare
Parts Breakout Program

by

William Frederick Johnson
Captain, United States Marine Corps
B.S., University of Arizona 1975



Submitted in partial fulfillment of
the requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
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ABSTRACT

This study was undertaken to determine DOD and Marine Corps objectives and requirements for replenishment spare parts breakout, analyze current directives and procedures, and to prescribe a comprehensive approach for implementing an effective replenishment spare parts breakout program at Marine Corps Logistics Base (MCLB) Albany, Georgia.

During the course of this study it was found that (1) the DAR Supp. 6 DOD Replenishment Spare Parts Breakout Program is focused on actions during replenishment while effective breakout is dependent on actions early in the systems acquisition process; (2) DAR Supp. 6 does not provide guidance for acquisition personnel whose actions are crucial to effective breakout; (3) the DAR Supp. 6 breakout process sufficiently captures the factors in the breakout decision but is too complex, and is inefficient for day-to-day use by breakout technicians.

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Additional keywords:
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I. INTRODUCTION

A. GENERAL

The many weapon systems utilized by the military services are supported by some four million spare parts which comprise approximately \$22 billion in the Department of Defense (DOD) Fiscal Year 1984 Budget [Ref. 1:p. xiv]. Weapon systems are in fact made up of components, equipment, and subassemblies which in turn are made up of thousands of parts. Spare parts are procured to replace those parts worn out in service, or which malfunction or break. Procurement of parts and maintenance of inventories of spare parts is required to keep weapon systems fully operational.

However essential to the operational availability of DOD weapon systems, resources for spare parts and logistics support, in general, have historically been the subject of budgetary scrutiny. This is due in part to an historical paucity in DOD funding coupled with the relative low priority assigned logistics support resources by both the Congress and DOD financial managers. [Ref. 2:p. 32] The appropriation of funds for logistics requirements has no immediately apparent return as does the exotic new weapon system.

The customary scrutiny over the billions of dollars spent by DOD for spare parts each year has, beginning in 1981,

exploded into possibly one of the hottest DOD issues.

[Ref. 1:p. 6] Through what might have been viewed as healthy introspection, numerous problems in spare parts pricing, identified by the Services' procurement activities themselves, have become the path to success for aspiring politicians and journalists. [Ref. 2:p. 31] These sources have, through calling attention to the overpricing of commonly recognized items not peculiar to DOD use, portrayed a procurement system which is out of control and paying outrageous prices for spare parts with the working man's hard earned tax dollars. Spare parts have thus become household words, and the public is angry, with new examples, such as the Pentagon paying \$1100 for a 34 cent plastic stool cap, splaying the headlines each month, preventing the subject from dying of natural causes over time. [Ref. 2:p. 31] The pet horror stories include the common \$15 claw hammer for \$435; the 4 cent diode for \$110; and the 45 cent allen wrench for \$9,000, to name only a few. The results of all this damaging media coverage were characterized by a Lockheed government contracting expert when he exclaimed that "Defense procurement is to the Congress what a fire hydrant normally is to a dog"

[Ref. 2:p. 31].

Understandably, Pentagon leadership is reacting to the press and Congressional criticism. According to former Deputy Defense Secretary Paul Thayer, "It's better to over-kill the problem initially and walk back from that if

necessary" /Ref. 2:p. 31/. The recent Air Force Management Analysis Group (AFMAG) Report on the acquisition of spare parts places the responsibility of a lasting spare parts procurement fix squarely on the shoulders of both the Services and industry /Ref. 3/. Industry leadership, however, reportedly has mixed emotions about becoming more involved in the fix of the common Defense/Industry problem of spares pricing given that the ensuing "witch hunt" is being "fertilized in a field of ignorance" /Ref. 2:p. 31/. An industry executive has prescribed taking one's lumps and getting back to business, that of helping our customer (DOD) improve combat readiness.

The Secretary of Defense published a memorandum to the Services and the Defense Logistics Agency (DLA) outlining a ten point spare parts procurement get well plan /Ref. 4/. The Secretary immediately followed up this plan with another memorandum mandating twenty five specific actions to be taken by the Services in controlling spare parts prices /Ref. 5/. In response to the Secretary of Defense direction, each Service and the DLA have embarked on ambitious reform programs with considerable resolve. These programs involve retrenching in the areas of procurement personnel resources commitment, training, competition, data management, and spare parts breakout. Competitive procurement methods are being touted and sold to the Congress as the key to controlling costs in procurement /Ref. 2/. Barriers to competition in a

predominantly sole-source defense industry environment are proving troublesome, however. The conditions are worsened by a shrinking defense industrial base, from some 6,000 companies in the aerospace industry in 1964 to some 3,500 in 1980 [Ref. 3:pp. 2-19]. According to a recent study into Federal Procurement Policy (OFPP), in the near term, the most difficult problem in the implementation of the Secretary of Defense reforms is the implementation of a cost effective replenishment parts breakout program [Ref. 1:p. xv].

To the uninitiated, replenishment spare parts breakout is most probably an innocuous phenomenon. Replenishment spare parts are those consumable or repairable parts purchased after provisioning of that part for replacement, replenishment of stock, or use in the maintenance, overhaul, and repair of equipment [Ref. 6:App. B]. Provisioning is a methodology utilized to provide the initial spare parts necessary to field a weapon system prior to the development of sufficient usage data to meet inventory stockage criteria.

DOD often buys spare parts from prime weapon system contractors that are not the actual manufacturer of the parts. The prime contractor procures these parts from vendors either semi-finished or complete. Unless the prime contractor accomplishes additional processing of the parts, including, inspection and packaging, he generally adds no intrinsic value to the parts. The cost that the prime contractor adds to vendor provided parts or pass-through costs is often

significant. At one Air Logistics Center (ALC) an analysis disclosed prime contractor markups of 250 per cent [Ref. 3:pp. 2-32]. Prime contractors allocate indirect costs to replenishment spare parts which may well not contribute to the production of those parts. The services which give rise to these costs are neither required nor available from small spare parts competitors. These services include independent research and development (IR&D), source approval, configuration management, and provisioning which provide no tangible value to replenishment spare parts. [Ref. 3:pp. 2-33] Breakout is the improvement of the acquisition status of a part by deliberate management action to buy a spare part competitively which was previously bought from the prime contractor who is not the actual manufacturer of the part [Ref. 7:pp. 56-103.6]. In short, replenishment spare parts breakout encompasses the deliberate management action taken to improve the potential for competitive or direct procurement of replenishment part.

To facilitate the implementation of replenishment spare parts breakout, DOD has issued the DOD Replenishment Parts Breakout Program regulation, Defense, Acquisition Regulation (DAR) Supplement Number 6, hereinafter referred to as DAR Supp. 6 [Ref. 7].

B. OBJECTIVES OF THE RESEARCH

The objectives of this study were to determine the requirements for and characteristics of an effective

replenishment spare parts breakout program and breakout decision model appropriately tailored for implementation at Marine Corps Logistics Base (MCLB) Albany, Georgia.

C. RESEARCH QUESTIONS

Given the stated objectives, the following research question was posed:

What should be the major characteristics of an effective replenishment parts breakout decision-making model for use at MCLB Albany?

The following subsidiary research questions were developed to assist in answering the primary research question:

1. What are replenishment spare parts and how are these parts acquired through a breakout program?
2. What are the major objectives and requirements of current U.S. Marine Corps regulations and policy on replenishment spare parts breakout?
3. What are the key phases in the acquisition process during which breakout efforts could be considered, and in which phases of the replenishment part life-cycle should breakout efforts be accomplished?
4. What is the role of technical data in replenishment spare parts breakout?
5. What is the scope of application of the MCLB Albany Replenishment Spare Parts Program and what decision-making process is used in this program?
6. What are the factors to be considered in the breakout decision?
7. How could the current scope and methodology of breakout efforts at MCLB Albany be expanded and improved?

D. RESEARCH METHODOLOGY

The research methodology utilized in this study first involved a comprehensive review of the available literature. This proved to be an ongoing process as new material was continuously becoming available due to ongoing public and high level interest in spare parts procurement. Next, personal and telephone interviews were conducted with Government personnel actively involved in the acquisition of replenishment spare parts both from an operational and policy aspect.

The literature utilized in the study was obtained through the Office of Federal Procurement Policy (OFPP); the Office of Installation and Logistics, Headquarters, U.S. Marine Corps; MCLB Albany, Georgia; Headquarters, Sacramento Air Logistics Center; the Naval Postgraduate School Library; the Defense Logistics Information Exchange (DLSIE); and the Defense Technical Information Center (DTIC).

Personal interviews were conducted with contracting, technical, and logistics personnel at MCLB Albany. Telephone interviews were conducted with acquisition personnel at the Office of Federal Procurement Policy; Office of the Deputy Chief of Staff, U.S. Air Force Contracting and Manufacturing Policy; Headquarters, Sacramento Air Logistics Center and MCLB Albany. All personal and telephone interviews conducted were informal and structured around the guidelines provided by the questions stated in Appendix A.

Additional information utilized in the study involved examination of MCLB Albany internal correspondence concerning replenishment spare parts breakout and office files documenting the evolution of the existing MCLB Replenishment Spare Parts Breakout Program.

E. SCOPE OF THE STUDY, LIMITATIONS, AND ASSUMPTIONS

The main thrust of the research effort involved determination of the objectives of the current DOD, Marine Corps and MCLB Albany policy and directives and what they require. Additional research was conducted into how these objectives are and can be implemented at MCLB Albany.

The study focused on the breakout of replenishment spare parts, thus component breakout was not included in the research effort. Provisioning of spare parts as a distinct process was considered only as it relates to the replenishment process. While cost effectiveness is an integral part of the decision to breakout an individual replenishment part, no attempt was made to provide a cost benefit analysis of breakout as a discipline. Accordingly, no attempt was made to challenge the DOD Replenishment Spare Parts Breakout program's assumption of a 25 per cent savings factor for economic evaluation in the breakout decision.

The desirability of instituting breakout whenever physically, legally, and economically feasible, was considered a given parameter in the analysis. Accordingly, the various

opportunities for application of breakout procedures and methodological possibilities for implementing prescribed procedures were examined. The development of a tailored replenishment spare parts breakout program and decision model for required Acquisition Method Code (AMC) and Acquisition method suffix Code (AMSC) screening and determination of the feasibility for breakout at MCLB Albany was central to the study.

It is assumed that the reader is familiar with standard DOD acquisition concepts and terminology as well as the spare parts procurement process.

F. DEFINITIONS

The following definitions are considered to be essential to the conceptual and operational presentations in this study:

1. Acquisition Method Code (AMC). A numeric code assigned by a procurement activity to document the results of a technical review of a particular part [Ref. 7:S6-103.17].
2. Acquisition Method Suffix Code (AMSC). An alpha code assigned by a procurement activity to further describe the acquisition status of a part by providing information concerning engineering, manufacturing, and technical data [Ref. 7:S6-103.27].
3. Annual Buy Value. The forecast quantity of a part required for the next 12 months multiplied by its unit price [Ref. 7:S6-1037].
4. Breakout. The improvement of the acquisition status of a part by deliberate management action to buy a spare part competitively which was previously bought noncompetitively, or to buy a part from the actual manufacturer which was previously bought from the prime contractor who is not the actual manufacturer of the part [Ref. 7:S6-103.67].
5. Contract Data Requirements Lists (CDRL). A contract form, DD form 1423 which is used to list all technical

data items required to be delivered under the contract
/Ref. 6:App. B7/.

6. Contractor Technical Information Code (CTIC). An alpha code assigned by the prime system contractor which provides information concerning technical data for a part
/Ref. 7:S6-103.7/.
7. Data Call. For purposes of this study a request by the Acquisition Project Officer (APO) or Data Management Officer (DMO) to all Government participants to submit their requirements for contractor prepared data in the instant procurement.
8. Data Repository. A DOD entity responsible for receiving, cataloging, storing, and retrieving technical data
/Ref. 6:App. B7/.
9. Deferred Delivery. The specification in a contract of that data which will be delivered but not including a delivery date
/Ref. 6:App. B7/.
10. Deferred Ordering. The practice of delaying the ordering of data until the need is determined
/Ref. 6:App. B7/.
11. Deferred Requisitioning. The situation in which the contract specifies the type, format, and range of data that the contractor is obligated to remain capable of delivering when requisitioned by the Government including ordering conditions and pricing terms
/Ref. 6:App. B7/.
12. Design Control Activity. The contractor of Government activity assigned responsibility for the design of a particular part and for the preparation and maintenance of current engineering drawings and technical data for the part
/Ref. 7:S6-103.9/.
13. Direct Purchase. The purchase of a part from the actual manufacturer of the part, including a prime system contractor who is the actual manufacturer of a part
/Ref. 7:S6-103.8/.
14. Replenishment Spare Part. A consumable or repairable part purchased after provisioning of that part for replacement, replenishment of stock, or use in the maintenance, overhaul, and repair of equipment
/Ref. 7:S6-102.11/.

15. Reprourement Data. A composition of specifications, plans, drawings, standards, and other data sufficient to permit the competitive follow-on procurement of an item [Ref. 6:App. B].
16. Technical Data. Specifications, plans, drawings, and standards used to describe the Government's requirements for acquisition [Ref. 7:S6-103.12].

G. ORGANIZATION OF THE STUDY

This study provides an introduction into the background and issues surrounding replenishment spare parts breakout in Chapter II. The breakout process is placed in the context of the spare parts acquisition process within the larger context of the major systems acquisition process. An overview of the DOD Replenishment Spare Parts Breakout Program is provided as well as some of the major issues surrounding breakout procedures.

The MCLB Albany Replenishment Spare Parts Breakout Program evolution up to it's present stage of development will be discussed in Chapter III.

Chapter IV will present a composite of the objectives and requirements of the prevailing regulations and policy. Next, the breakout process prescribed by the DOD Replenishment Spare Parts Breakout Program, DAR Supp. 6, will be evaluated in terms of the composite objectives and requirements.

A comprehensive breakout strategem tailored for MCLB Albany will then be presented as a result of the analysis and attendant research in Chapter V.

Chapter VI presents the researcher's conclusions drawn from the research as well as the recommendations for fully implementing replenishment spare parts breakout at MCLB Albany.

II. FRAMEWORK

A. INTRODUCTION

The procurement of replenishment spare parts is most often portrayed in the context of standard supply procedures, that ongoing process of replenishing those inventories of spare parts managed by the cognizant item manager in a Service's inventory control point (ICP). The aspects of actually acquiring these system parts from private industry, and the dependence of the procurement method to be utilized upon adequate planning for spares procurement early in the supported system's acquisition process, necessarily place replenishment spare parts procurement, and breakout, in the context of the systems acquisition process.

B. THE SPARE PARTS ACQUISITION PROCESS

Generally speaking, spare parts are acquired through two distinct and separate processes, initial provisioning and replenishment. During initial production of a weapon system, Government and prime contractor personnel participate in provisioning conferences and make decisions concerning the spare parts required in an initial provisioning package for use during fielding of the system including prices, method of acquisition, and sources of supply. Parts identified that are peculiar to the system are usually procured from the prime

contractor. Those parts which are not peculiar to the system are usually procured from the prime contractor. Those parts which are not peculiar to the instant system are issued from the cognizant Service, Defense Logistics Agency (DLA), or General Service Agency (GSA) stocks. As the system under production is fielded and matures, the provisioning package of spare parts is exhausted through repairs and maintenance of the systems fielded. Follow-on procurement of spare parts to replenish these exhausted inventories is consequently dubbed replenishment spare parts.

Notwithstanding that provisioning and replenishment are distinct and separate processes, planning for spares procurement early in the acquisition process and provisioning are critical to the capability for competitive procurement of replenishment spare parts. The failure of the contractor to identify the actual manufacturer of vendor provided spare parts or failure to provide a sufficient procurement data package with unlimited rights for those parts he produces can render future competitive procurement of replenishment spare parts difficult and costly, if not impossible.

C. BREAKOUT OVERVIEW

The process of improving the competitive status of replenishment spare parts through identification of the actual manufacturers and development of other qualified sources is governed by the requirements and direction in DAR Supp. 6.

The objective of the Program is to reduce costs by the breakout of consumable or repairable replenishment spare parts from other than the prime system contractor while maintaining the integrity of the system and the equipment within which the parts will be utilized. The program calls for the Government's application of sound engineering and business management in decisions involving the feasibility and economic advisability of removing the restraints to breakout to competitive procurement discovered during breakout screening.

Screening for breakout candidates is to be accomplished as early as possible to determine the technical and economical characteristics of a part which will affect its potential for breakout to competition. The regulation prescribes effective utilization of resources in accomplishing breakout and suggests the application of priorities in assuring the concentration of breakout efforts of those parts which offer the greatest potential for breakout and potential savings.

Another facet of the DOD Program is its emphasis on supporting the socio-economic objectives of the Small Business Association (SBA). Small and small disadvantaged businesses are to be afforded the opportunity to supply parts.

[Ref. 7:S6-104] Essentially, the Government will provide any firm the opportunity to demonstrate its ability to satisfy the Government's requirements in an expeditious qualification evaluation regardless of the part's annual buy value. Surplus parts suppliers will be considered as viable sources. All

potential suppliers must provide the evidence necessary for qualification at their own expense, however. Procurement organizations must provide resident Small and Small Disadvantaged Business Utilization (SADBU) Specialists and Small Business Administration Procurement Center Representatives (PCRs) the opportunity to participate in all acquisition method coding conferences at both Government and contractor locations. /Ref. 7:S6-105/

During the provisioning process, the contractor provides provisioning parts lists (PPLs) which list those initial parts that the contractor recommends that the Government procure for fielding the system under production.

/Ref. 1:p. 21/ The Government evaluates the lists for need utilizing maintenance records and simulation techniques in an iterative process called Logistics Support Analysis (LSA). Once the PPLs are validated, they can be screened for initial assignment of spare part acquisition method codes (AMCs) and acquisition method suffix codes (AMSCs). The AMCs are assigned by Government technical personnel to a part to provide the contracting officer with summary information concerning the acquisition method recommended and sources which may be solicited during acquisition of the part. The AMSCs are assigned to provide additional information about a part such as engineering, manufacturing, and technical data. The AMC/AMSCs are assigned by Government technical personnel taking

into consideration all available data on a part including the prime system contractor's recommendations. These recommendations may include contractor technical information codes (CTICs) which provide information concerning technical data for the part. Contractor recommendations for the assignment of AMC/AMSCs are to be reviewed critically and considered as just recommendations and not accepted at face value.

/Ref. 7:S6-302/ The assignment of AMC/AMSCs includes the establishment of review dates for subsequent review and progressive upgrade, if possible, of the competitive status of a part. Competitive status is preferred followed by direct procurement of a part from the actual manufacturer.

Current Directives prescribe a dual faceted AMC/AMSC screening process to initially assign the codes to parts entering the inventory during fielding and to periodically review the codes assigned by screening machine produced projections of the following year's annual buy requirement for a part. In the interest of cost efficiency, all parts are not required to be screened annually, rather only those with an expiring review date established during the last review. Additionally, only those parts with a projected annual buy value in excess of \$10,000 are required to be screened and then only until such time as they are assigned a code indicating direct or competitive procurement.

D. EVOLUTION OF THE DOD SPARE PARTS BREAKOUT PROGRAM

Generally speaking, DOD has experienced considerable longstanding problems in realizing competitive savings through breakout /Ref. 10:p. 17. The original DOD breakout program was established in 1963 with the joint service regulation, High Dollar Spare Parts Breakout Program, published in 1969. The stated objective of this program was to screen replenishment spare parts as early as possible to identify those parts with high-dollar value and to reduce the cost of high-dollar parts by breaking their procurement out from the prime weapon system contractor for either competition or procurement from the actual manufacturer. In 1983 the subcommittee on Legislation and National Security, House Committee on Government Operations held hearings on the DOD Breakout Program and in June 1983, DOD issued a revised regulation, DOD Replenishment Spare Parts Breakout Program, Defense Acquisition Regulation (DAR) Supplement Number 6.

/Ref. 10:p. 17 Later in April, 1984 the DAR Supp. 6 was incorporated into the DOD Federal Acquisition Regulation (FAR) Supplement. The revised breakout regulation contains changes intended to enhance efforts in breakout and competition

/Ref. 10:p. 27. The same procedures are utilized as in the old regulation, but several of the AMC and AMSC codes have been changed or deleted and wording of the order has been clarified.

E. ISSUES SURROUNDING BREAKOUT

1. Relative Priorities

The successful breakout of a part requires adequate planning for competitive procurement of spare parts early in the weapon system acquisition process. The Acquisition Project Officer (APO) must satisfy the competing objectives of cost, schedule, readiness, and affordability. Historically, spare parts considerations have not received the highest priority, partly due to the illusive nature of logistics support and spare parts costs. As a result, acquisition strategies have not focused on the creation and preservation of the necessary ingredients for competitive replenishment spare parts procurement. [Ref. 11:pp. 2-21] During the system acquisition process, in initial production, the time frames for accomplishing the myriad of Logistics Support Analysis (LSA) and provisioning tasks is so constrained that the necessary ingredients to competitively procure replenishment spares are difficult to establish even if prescribed in the acquisition strategy. Actual manufacturers of spares are not adequately identified, adequate data packages are not obtained and restrictive contractor recommended acquisition method codes are accepted without challenge. [Ref. 3:pp. 2-22]. While the accomplishment of all the maintenance and repair decisions, economic analysis of acquisition alternatives, and resulting procurement actions in such extreme time frames meet initial need dates and usually ensure that spares are on hand, the

seeds for competitive procurement remain unsown. As a result, most weapon systems peculiar spares are procured from the prime contractor. [Ref. 3:pp. 2-22].

The actual replenishment process at procurement activities presents conflicting priorities. At times the priority or urgency of a requirement as well as the timing of its funding do not allow time for adequate screening for breakout to competitive procurement [Ref. 8:p. 9, Ref. 9:p. 4]

2. Personnel Resources

The breakout procedure is complex and time consuming. The procedure requires a significant number of additional man years of effort in the acquisition process to maintain present procurement leadtimes and not seriously erode readiness. [Ref. 12] The Secretary of Defense has mandated provision of adequate resources [Ref. 13].

3. Training

Besides the additional man years of effort involved in the screening of spare parts, developing procurement data packages, and qualifying additional sources, the nature of these activities will require additional training and recruitment of technical personnel with increasingly higher skill levels. For example, the development of data packages and additional sources requires knowledge of manufacturing processes and techniques, industry conditions, and post manufacture safety and critical part characteristics considerations. [Ref. 7:S6-102, Ref. 1:p. xv; Ref. pp. 5-11]

4. Technical Data

Issues in the management of technical data have proven particularly troublesome in the competitive procurement of spare parts [Ref. 1:p. xv]. To procure spare parts competitively, the services must possess or obtain an adequate procurement data package. As the data making up these packages cannot be produced until the freezing of design, they may not be available for one and one half to two years after the first production contract award [Ref. 1:p. 25]. As a result, the first two or three year's production buys of parts are sometimes, of necessity, bought prior to the procurement data package becoming available. Contract terms and use of clauses is crucial to receiving adequate procurement data packages with unlimited rights for competitive procurement. The Defense Acquisition Regulation (DAR) clauses which are critical to receiving sufficient rights, or at least becoming aware of limited rights early in the acquisition process, are DAR 7-104.9 Rights in Technical Data and DAR 7-2003.61 pre-termination of Rights in Technical Data [Ref. 6:pp. 5-16]. Basically, the DAR pronounces Government ownership of data developed at Government expense for a Government contract, and allows contractor retention of rights of data developed at a contractor's own expense. Unfortunately, the DAR does not sufficiently define the criteria for development at private expense. In practice, this results in relatively unconstrained use of restrictive data markings. Compounding the

application of restricted markings, DAR 7-104.9 provides for protection of limited rights in perpetuity, even though technological change or other factors make the limitations meaningless. /Ref. 3:p. 2-17/ The data making up a procurement data package must be functionally adequate to enable a competent supplier in the same field to produce the part without additional design effort on his part. /Ref. 5:p. 9/ The package should be constructed from a bidder's viewpoint. Basically, if unlimited rights to the manufacturing process is provided, the package should tell how to produce the part. If limited rights are provided the package should tell the bidder what he must do to manufacture the part.

/Ref. 17:pp. 13-22/ These packages usually contain detailed production engineering drawings, specifications, standards, manufacturing process characteristics, lists of materials, and exhibits. In practice, the data may not reflect key manufacturing know how necessary to satisfactorily produce a part.

The problems in ascertaining whether a data package is sufficient for successful competitive procurement is exacerbated by the difficulty encountered in data price analysis. Very little research or direction has evolved which establishes the intrinsic value of technical data. /Ref. 19:p. 1/ Available research merely identifies the various factors which tend to increase or decrease the cost of data /Ref. 19:p. 28/. See Appendix B. The establishment of standards for the cost of data items is precluded by the wide

variation in which the cost of data development and preparation is charged to the Government [Ref. 19:p. 59]. Although data pricing would appear to be reduced to a "what the market will bear" approach, [Ref. 18], the research indicates that data costs "can be controlled and to a certain extent minimized" [Ref. 19:p. 59].

Data for the successful competitive procurement of replenishment spares is often not procured, due to competing funds requirements and the lack of planning for competitive spares procurements. A General Accounting Office (GAO) audit reported that DOD activities have often ordered and paid for data they never received [Ref. 20:p. 17]. Contributing to nonreceipt were the wording of contracts, nonexistent pending or data due tickler systems, and unclear assignment of duties involving receiving, inspecting, and accepting data prior to payment [Ref. 20:p. 34]. Inspection procedures were found inadequate in that as a general rule, technical data, which is provided in aperture card form on microfilm, is screened on a random basis for legibility and reproducibility. There was no evidence that the data was reviewed for acceptability in terms of adequacy for the purpose acquired [Ref. 20:p. 39].

Once acquired, technical data is often not utilized for competitive procurement for a variety of reasons. Assuming that unlimited rights are received, the delivery schedule of data items is usually left up to the contractor. This

peacemeal receipt of various drawings or specification is complicated by the nature of technical data itself. There are varying requirements for data items specified by standard and tailored Data Item Descriptions (DIDs) in the Contract Data Requirements List (DCRL) which satisfy such service uses as compiling stock lists and training manuals. The assemblance of all the drawings, specifications, and lists as a reprourement package may be incidental to each data item's initial use. Data repositories are predominantly manual labor intensive systems with substantial opportunity for losing or misfiling a drawing package [Ref. 9:p. 47]. Even if technical data is available in a service repository, the operational requirement for a part may not allow time for assembling a data package for procurement. The common procedure in completing a package is to locate the top drawings and, tracing backwards, locate all subsidiary drawings and specifications noted on each drawing. The process ends when no additional items can be found. [Ref. 9:p. 4; Ref. 6:pp. 5-8]

5. A Conflict of Interest

The last issue noted, surrounding replenishment spare parts breakout, is an objection to the provisions of the DOD replenishment spare parts breakout regulation by the National Tooling and Machining Association (NTMA). Small Business Administration and NTMA officials have expressed objections to prime contractor involvement in the acquisition method coding

conferences without small business representation.

[/Ref. 10:p. 47] A recent DOD Inspector General's report on technical data use in competitive procurement states that "Prime contractors have much to gain in the form of sales of spare parts, by recommending restrictive codes that would cause the Government to solicit future buys from these firms exclusively" [/Ref. 20:p. 217]. The DOD breakout regulation specifically requires procurement activities to provide both small business PCRs and SADBUs specialists the opportunity to participate in all coding conferences. The NTMA objections would appear better directed towards SBA's ability to provide sufficient travel funding and personnel to participate in these conferences however [/Ref. 8:p. 97].

F. SUMMARY

The DOD breakout program has been in existence for some 20 years. Implementation has proved to be a complex and lengthy ordeal requiring revitalization by DOD with DAR Supp. 6. [/Ref. 1:p. 277] The revised program fixes responsibility for implementation of its policies with the Commanders of DOD activities with breakout screening responsibility. Each Commander must assign a breakout program manager to serve as program focal point, assist in implementation, and monitor ongoing breakout efforts. [/Ref. 1:p. 277] In the Marine Corps, the Commanding General, Marine Corps Logistics Base (MCLB) Albany, Georgia has full responsibility for replenishment

spare parts management [Ref. 1:p. 187]. Following is a brief overview of spare parts procurement process at MCLB Albany and description of the MCLB Albany Breakout Program.

III. THE MARINE CORPS LOGISTICS BASE ALBANY REPLENISHMENT SPARE PARTS BREAKOUT PROGRAM

A. THE MARINE CORPS SPARE PARTS PROCUREMENT PROCESS

The Marine Corps spare parts procurement process is under the cognizance and direction of the Deputy Chief of Staff for Installations and Logistics. The Marine Corps makes use of other Service and Defense Logistics Agency (DLA) Management of the acquisition of weapon systems and spare parts to the maximum extent possible as a matter of policy /Ref. 1:p. 121/. Of the 300,000 spare parts utilized by the Marine Corps, only 22,000 are managed by the Corps itself. Of the 22,000, most are consumable items. Of the consumables only about 6,300 are actually stocked, with the rest bought on demand /Ref. 1:p. 18/. Some Marine Corps systems or end items are procured through Headquarters Marine Corps, but major systems are purchased for the Marine Corps by the various Navy Systems Commands and the U.S. Army Tank and Automotive Command. Spare parts for Marine aircraft are managed by the Navy with the majority of the consumable spare parts used by the Marine Corps managed by DLA /Ref. 18/. The Marine Corps manages spare parts for which it is the primary inventory control point (ICP) at the Marine Corps Logistics Base (MCLB) Albany, Georgia /Ref. 18/. The Marine Corps accomplishes provisioning for these parts and for some which support Marine weapon

systems procured by the other Services in a joint Headquarters Marine Corps, MCLB Albany effort. MCLB Albany manages replenishment spare parts through the Weapon System/Equipment Management (WS/EMs) Directorate. The inventory or item managers in the WS/EMs Directorate manage both provisioning and supply functions /Ref. 21/. The automated inventory control system produces computer-generated purchase requests which when reviewed for accuracy and "scrubbed" for errors by the cognizant Item Manager, are funded and passed to the Contracts Division to accomplish procurement /Ref. 18/. MCLB Albany accomplishes requirements forecasting and budgeting for replenishment spares utilizing a mechanized stratification process. The stratification program is designed for use on a quarterly basis or as required /Ref. 22/.

B. REPLENISHMENT SPARE PARTS BREAKOUT

The origin of replenishment spare parts breakout at MCLB Albany dates back to the issuance of the joint-service, DOD High Dollar Spare Parts Breakout Program regulation in 1969. The program received added emphasis in 1982 when MCLB Albany published the MCLB Albany base order, High Dollar Spare Parts Breakout Program, and in 1983 when DOD published the revised DOD Replenishment Spare Parts Breakout Program, DAR Supp. 6 /Ref. 18/. Early efforts in breakout at MCLB Albany centered around individual buyers in the Contracts Division identifying spare parts candidates for which additional sources

could be identified or qualified, a process described by cognizant personnel as "targets of opportunity" /Ref. 187. The program was expanded under the High Dollar Spare Parts Breakout Program. The MCLB Albany order placed the program under the cognizance of the Director, Technical Operations Division. This program prescribed a dual approach to spare parts breakout. It provided for technical operations liaison with the Provisioning Division for selective screening of MCLB Albany managed provisioning spare parts for assignment of procurement method and procurement method suffix codes (PMC/PMSCs) and to identify high dollar provisioning candidates for direct or competitive procurement. The order officially established MCLB Albany's utilization of the spare parts stratification process prescribed by the Joint Service order for replenishment spare parts screening, and review of PMC/PMSCs. The stratification program produces computer listings of the forecast requirements for replenishment spare parts for the next twelve months called "post grid extract listings" /Ref. 147. The listings provide the projected requirements in descending annual buy value. The Joint Service High Dollar Breakout order classified a high dollar spare part as any spare part included in a list of high dollar items ranked in descending order of annual buy value. The annual buy value was computed by multiplying the unit price times the annual buy quantity. High dollar spares were those which represented at least eighty per cent of the total forecast

amount to be spent, when measured in descending order from the highest annual buy item. The joint order required separate stratification and screening of both provisioning and replenishment spare parts meeting the high dollar criteria. The MCLB Albany order further established a \$2,500 threshold on screening for replenishment spare parts. With the issuance of DAR Supplement Number 6 in 1983, the screening threshold for replenishment spare parts was raised to \$10,000 in accordance with the DOD regulation. Under this system, personnel in the Technical Operations Division screened the stratification listings for review of PMC/PMSC codes, now called AMC/AMSC codes, under DAR Supp. 6 utilizing the voluminous decision process in the Supplement as a guide. At the present time, MCLB Albany does not utilize any other decision model or internally produced decision tables or forms such as the U.S. Air Force, AFLC Form 761 Screening Analysis Worksheet utilized in making breakout decisions by Air Force Logistics Centers [Ref. 18; Ref. 14; Ref. 23]. A copy of AFLC Form 761 is provided in Appendix B.

Breakout actions have been accomplished at MCLB Albany under the present program and in some cases savings have been realized. In other cases, problems such as schedule delays, quality control, and actual default have occurred with the development of additional sources and competitive procurement. [Ref. 18]

At the present time, the replenishment spare parts breakout program is not fully developed as a continuous ongoing process. Cognizance for the program has been transferred to the newly formed Competition Advocate's Office during recent reorganization [Ref. 14]. The Competition Advocate's Office is presently being manned with twenty seven acquisition, engineering, and technical specialists including procurement specialists, contract price analysts, engineers, industrial specialists, data transcribers, and quality assurance specialists to accomplish a variety of initiatives in the competitive acquisition and price control of spare parts. These initiatives include a program for evaluation of data packages received from prime contractors. Selected packages are sent to the Naval Weapons and Engineering Support Activity (NAWESA), U.S. Navy Yard, Washington D.C. According to some sources, this process is extremely time consuming, sometimes taking one and one half to three years, due to NAWESA backlogs. Unfortunately, the Marine Corps has not historically possessed sufficient funding for contracting out for evaluation as is the practice at Air Force Logistics Centers [Ref. 18]. The recruitment of engineering talent for the Competition Advocate's Office should provide in house capability for data evaluation. Other initiatives underway which will enhance replenishment spares breakout include development of spares acquisition policy guidance, (Draft Marine Corps Order (MCO) 4200.22D, Marine Corps Replenishment Spare

Parts Breakout Program), improvements in contracting techniques, and a mechanized Technical Data/Configuration Management System (TD/CMS) to manage the approximately two million drawings in the MCLB Albany data repository
/Ref. 8:p. 7; Ref. 247.

IV. THE DEFENSE ACQUISITION REGULATION
SUPPLEMENT NUMBER 6 BREAKOUT
PROCESS-EVALUATION FOR APPLICATION

A. GENERAL

A literature review and personal interviews were conducted to determine the DOD and Marine Corps policies and regulations relevant to the breakout of replenishment spare parts and to identify the corresponding objectives and requirements of the existing guidance.

The most pronounced phenomenon experienced by one researching spare parts procurement is the sheer magnitude of policy guidance which has been generated. Breakout as one of the methods of achieving competition in the procurement of spare parts is necessarily related to competitive procurement in general. Competitive procurement involves a widerange of issues and techniques either in use or proposed by policy makers and practitioners. To maintain the scope of research, only those objectives and requirements which were clearly related to the issues surrounding breakout were analyzed to form a composite for evaluation of the DOD Breakout Program and to prescribe a replenishment spare parts breakout program tailored for MCLB Albany, Georgia.

B. OBJECTIVES

The central and stated objective of the DOD Replenishment Spare Parts Program is to reduce DOD costs in the procurement of replenishment parts. According to doctrine, this objective is met by breakout of replenishment parts for purchase from other than the prime weapon system contractor.

[Ref. 7:S6-102]

From this central objective is the corollary that breakout action should be cost effective over the projected program quantity buy. Otherwise, breakout would not reduce costs. The DOD Breakout Program prescribes a 25 per cent savings factor to weigh against the costs expected to be incurred in a breakout directly to the original manufacturer or under competitive procurement procedures unless another factor has been determined from local conditions and experience

[Ref. 7:S6-303.5].

Basic, but central to the breakout concept, is the objective or results of the breakout screening process itself. The process should provide the contracting officer with summary information concerning the recommended procurement method and sources of supply which may be solicited.

[Ref. 7:S6-102]

Another objective is that resources assigned to breakout should be utilized in the most effective manner.

[Ref. 7:S6-104] Resources involved in the breakout process

involve not only labor but the requisite financial resources utilized to obtain technical data and develop additional sources. /Ref. 11:p. 17/

The DAR Supp. 6 identifies the need for sound management and engineering judgement in making the decision to breakout after taking into consideration the various constraints and barriers to breakout encountered in the screening process. This objective requires personnel resources and personnel commitment in order to be accomplished effectively.

/Ref. 7/

Following the above objective and as stated in Executive Order 12352, is the broad objective of developing a professional procurement workforce. /Ref. 1:p. 167/

The acclaimed preference for competition in contemporary procurement literature is included in the DOD Breakout Program to establish the preferred breakout alternative; breakout to competition is preferred over breakout to direct procurement from the actual manufacturer of a part

/Ref. 7:S6-102/.

A qualification to the preference for competitive procurement through breakout is to maintain the integrity of the systems and equipment in which the parts are to be used. This caveat in the DOD Breakout Program subjects the breakout decision to configuration control and parts standardization considerations. /Ref. 7:S6-102/

A qualification to the breakout process maintains readiness through supply support as an objective. The DOD Breakout Program allows that an urgent, immediate buy need not be delayed if the additional time required for breakout procedures would surpass the required delivery date of the parts [Ref. 7:S6-105]. The definition of an urgent requirement is apparently left to the prerogative of the procurement organization.

A socio-economic objective of the DOD Breakout Program is that no firm will be denied the opportunity to qualify as an acceptable source for spare parts. This objective includes not only small and small disadvantaged businesses but also surplus parts dealers. The DOD review of requests for qualification will be timely as well. [Ref. 7:S6-104]

As stated earlier, the policy guidance for competitive procurement is abundant. Policy objectives and requirements are often repeated or are closely related. Because of this, the objectives and requirements cited are composites.

C. REQUIREMENTS

The requirements levied by existing guidance in implementing an effective replenishment spare parts breakout program are interrelated, interdisciplinary, and in many cases require a total Service commitment for accomplishment. The successful planning for the competitive procurement of replenishment spare parts requires efforts and coordination

with the financial, requirements, contracting, technical data management, and logistics support communities. In accordance with the research design, a composite of the relevant requirements for implementing replenishment spare parts breakout external to the detailed procedures stated in DAR Supp. 6 are presented to evaluate the DOD Program in terms of whether it meets, or sufficiently provides for meeting, the objectives and requirements of current policy and regulations.

The foremost requirement prevalent in various reports on DOD procurement of spare parts policy statements is to implement the features of the DOD Breakout Program. [Ref. 17]

Spawned in the Defense Secretary's published initiatives in spare parts acquisition, and echoed thereafter, is the mandate to provide the necessary resources to induce "desirable breakout" [Ref. 57] This requirement involves the requisite personnel resource commitment and may well involve a substantial monetary commitment to procure required technical data and to develop additional supply sources. Competitive procurement procedures themselves are administratively more costly than sole source methods [Ref. 11:p. 177]

A related requirement is to assign more engineering resources to review technical data packages received from contractors. [Ref. 57]

As stated earlier, many of the requirements for the effective implementation of a replenishment spare parts breakout program involve activities other than the logistics

support/replenishment community. One such requirement is to consider the Government's right and ability to breakout and competitively procure spare parts in all contracts for defense systems.

Such consideration would involve discontinuing the use of Government specifications and discouraging contractor proposed engineering designs which would inhibit subsequent competitive procurement of spare parts. [Ref. 5]

Carrying consideration of spares competition in contracts a step further, is the objective to make breakout of spare parts a factor in source selection for major systems.

[Ref. 5]

Another such requirement is to negotiate contract provisions that reduce the contractor's use of proprietary rights in data. [Ref. 5]

A requirement expressed in official reports on defense procurement of spare parts and various policy initiatives is to further mechanize defense data repositories to improve the acquisition, receipt, inspection, storage and retrieval of technical data. [Ref. 5; Ref. 9]

A broad requirement expressed in the literature on spare parts procurement is to improve the training of personnel in the spare parts acquisition process to ensure proper emphasis on DOD policy and initiatives, understanding of requirements and regulations, and to develop requisite skill levels.

Last, but not least, the Secretary of Defense has mandated that nothing short of full management commitment and application of technical expertise will be afforded the DOD initiatives of which replenishment spare parts breakout is a key and troublesome part. [Ref. 1; Ref. 5]

D. EVALUATION FOR APPLICATION

An evaluation of the DOD Replenishment Spare Parts Breakout Program was conducted in terms of whether the Program as prescribed by DAR Supp. 6 meets the objectives and requirements of current policy and regulations. It is acknowledged by the researcher that policy and regulations in and of themselves contribute only guidelines and direction to the realization of their stated purpose. As such, the breakout procedures in DAR Supp. 6 were evaluated in terms of whether provision was made for actions necessary for implementation of the program by practitioners in the field and whether the procedures, if followed, would meet the objectives and requirements of current policy and regulations.

The basic objective of the DOD Breakout Program is to reduce costs in the procurement of replenishment spare parts by breakout of parts for purchase from other than the prime weapon system contractor. Other objectives were presented earlier in this chapter. The breakout process as prescribed in DAR Supp. 6, establishes a screening process with step-by-step instructions for examining the competitive status and

condition of resident technical data for any particular part. Provision is made internal to the process for quantification of specified additional direct and indirect costs to the Government for breakout involving the costs of special tooling, source development and qualification, correction of deficient data packages, purchase of data rights, and quality control. The process, in decision table fashion, routes the breakout decision maker through the applicable steps to identify a part's present competitive status, to identify the necessary actions to improve the competitive status, quantify the costs of improving the status, and sums the costs for comparison against the computed savings. The estimated savings due to breakout are computed simultaneously with the costs by multiplying a prescribed 25 per cent or actual locally experienced savings factor by the remaining program life buy value of the part.

A recent Government Accounting Office (GAO) study concluded that the DAR Supp. 6 coding system does not promote competition and possesses the potential to inhibit competition if competitively restrictive codes were assigned improperly /Ref. 10:p. 27. Although the DOD Breakout Program centers around the coding system it provides a comprehensive program of code assignment and systematic review which, if followed, exhausts the possibilities for improving the competitive status of a part through prescribed actions to

remove the barriers to competition. Assuming the contemporary premise that competitive procurement of spare parts reduces the cost to the Government is valid, actions taken which result in improved competitive status of a part should reduce costs if those actions taken were cost effective. The screening process is in fact structured to ensure that actions taken are cost effective over the projected program life buy value of a part. If breakout personnel follow the procedures as prescribed and are sufficiently trained and qualified to apply sound management and engineering judgement as prescribed, the DOD Program would appear to provide sufficient guidance to realize cost savings through competitive or direct procurement if cost savings are to be obtained.

The DOD Program satisfies the basic objective of providing the contracting officer with summary information concerning the current competitive status of a part. The products of the screening process fall out at various stages of the 65 step progression depending on the ability to breakout the part for direct or competitive procurement, the cost effectiveness of doing so, and the time available to complete breakout efforts and yet meet the part requirement date. As a result of the screening process, two codes are assigned, or reaffirmed if appropriate, to a part. The Acquisition Method Code (AMC) reflects the breakout technician's judgement concerning the part's status on a competitive to restrictive scale of, respectively, 1 to 5 as described in

Appendix D of this study. The Acquisition Method Suffix Code (AMSC) Supplements the AMC by explaining the rationale for the AMC assigned. Appendix E describes the AMSCs and the combinations of AMC and AMSCs which are considered meaningful or valid in DAR Supp. 6. The sources which may be solicited are provided to the contracting officer upon his review of the individual part file which is established during the screening process. The file documents the screening conducted and the results of screening, complete with AMC and AMSC codes assigned, sources identified, and economic evaluations leading to the breakout decision. Complete justification for restrictive coding assigned, breakout decisions, and for procurement methods utilized by the contracting officer are documented in the file. /Ref. 7:S6-303.1/ Abbreviated procedures for partial part screening are provided by the DOD Breakout Program for use when the procedures for full screening cannot be accomplished in time to meet an immediate buy requirement. The abbreviated procedure covers only the essential technical and data considerations. /Ref. 7:S6-304/

The DOD Breakout Program makes certain provisions to ensure that resources assigned to breakout are utilized effectively. The Program requires the use of priorities in ensuring that the greatest effort is applied to breakout those parts for which the greatest savings will be realized /Ref. 1:p. 160/. A \$10,000 projected annual buy floor is established to preclude periodic screening of low value parts

with a low potential for savings. Screening of all parts exceeding the \$10,000 threshold is not required during scheduled periodic reviews. Parts are screened based on a suspense date established during initial or previous screening based on the circumstances surrounding the individual part. The period between suspense dates varies. For AMC/AMSC codes assigned as the result of limited screening, the suspense period will be no greater than 12 months. For codes assigned during full screening, the suspense period will not exceed 36 months. In extreme cases where the status of the part is not expected to change, a suspense period not exceeding 60 months may be assigned subject to local controls. Other provisions to ensure the effective assignment of breakout resources include termination of screening when a part reaches competitive status. /Ref. 7:S6-1047, (See Appendix F). Lastly effective resource assignment is encouraged by advocating incorporation of the screening process with other existing mechanized processes at the part procurement activity.

Objectives concerning the recruitment of quality personnel and instituting ongoing training to ensure adequate personnel qualification capable of sound management and engineering judgement in accomplishing breakout responsibilities are advocated by the DOD Breakout Program. The accomplishment of these most challenging objectives are subject to the commitment of the service and it's procurement activities.

Due to the technical nature of the tasks involved in breakout activities, the accomplishment of these objectives cannot be overemphasized. A 1979 study of the purchase of reprocurement data noted that Government publications dealing with procurement data were unsuitable reading for anyone with less than a third year college level reading ability [Ref. 25:p. 117].

The DOD Breakout Program, while an integral part of current DOD and service initiatives to increase competition and reduce and control prices of spare parts, takes into consideration the Services' requirements for configuration control and parts standardization. The breakout process subjects the breakout decision to these considerations, by design, to maintain the integrity of the supported system and its equipment. Enroute in the screening process, prior to action to develop additional sources for a part, allowance is made for consideration of source control, design control, production from class 1A castings, required master tooling, special testing, qualified products list (QPL) control, high reliability, and whether design of the part is yet unstable. [Ref. 7:S6-303.4]

Although breakout screening and the host of actions arising to effect breakout under a variety of situations can be a lengthy, time consuming process, provision is made for temporarily by-passing the breakout process to satisfy urgent requirements. Both the limited screening process for

immediate buy requirements and an allowance for actually by-passing the process altogether is provided for immediate urgent requirements. /Ref. 77

The DOD Breakout Program makes provision for satisfying the socio-economic objective of providing all firms equal opportunity to qualify as an acceptable parts supplier. The Program requires that Government activities make a vigorous effort to expedite requests for qualification. No firm, including small and small disadvantaged businesses or non-manufacturing surplus dealers, will be denied the opportunity to demonstrate it's ability to satisfy Government requirements for a part at the firm's own expense. To ensure small and small disadvantaged business interests are given adequate consideration, the Program requires that all parts procurement organizations provide the opportunity for Small and Disadvantaged Business Utilization Specialist and resident Procurement Center Representatives to attend all AMC/AMSC coding conferences with contractors whether at contractor or Government locations.

The DOD Replenishment Spare Parts Program as prescribed in DAR Supp. 6 presents an interesting dichotomy. The bulk of direction provided in the regulation centers around a breakout process which involves actions which, by consideration of timing in terms of the systems acquisition process, occur during the Production/Deployment Phase of the system acquisition process. The progressive phases of the systems

acquisition process as delineated in DOD Directive 5000.1, Major Systems Acquisitions, are Concept Exploration, Demonstration and Validation, Full Scale Development, and Production and Deployment /Ref. 26/. The breakout actions which DAR Supp. 6 concentrates on are accomplished during replenishment, (follow-on-procurement after provisioning of a part subsequent to a system's deployment). On the surface, a replenishment spare parts breakout program would appear most aptly concentrated on the replenishment cycle which involves actions which are generally guided by standard supply procedures. Interestingly enough, unless several considerations early in the acquisition process of the supported system are satisfied, breakout, according to a study by the Army Aviation Systems Command, "is being asked to pick up the pieces under the worst possible conditions" /Ref. 11:p. 17/.

According to the DOD Breakout Program, commanders of procurement activities will designate a breakout program manager who will serve as program focal point, communicate breakout policy, provide assistance in screening, and monitor breakout efforts in accordance with the DOD Breakout Program. He or she will ensure that actions to remove the barriers to breakout are continued for the life of a part. /Ref. 7:S6-105/ Other than the general requirement to identify, select, and screen parts for breakout as early as possible, no further treatment of actions earlier in the acquisition process than during replenishment are specified. As such, the

Replenishment Spare Parts Breakout Program does not prescribe a breakout program in the sense of being sufficiently comprehensive in guidance to independently guide the practitioner in implementing an effective breakout program. In the opinion of the researcher, DAR Supp. 6 prescribes a comprehensive process, not a program, for breakout action timed for implementation no earlier than provisioning during late Full Scale Development and early Production.

The earliest that parts can be realistically identified for screening procedures would appear to be subsequent to the prime contractor providing a Government approved provisioning parts list during late provisioning conferences [Ref. 27; Ref. 28]. Adequate planning for the procurement of spare parts must begin early in the system acquisition process so that actual manufacturers and alternative sources are identified and so that sufficient technical data suitable for reprourement is obtained in a timely manner [Ref. 1:p. 44]. As stated earlier, DOD has experienced considerable difficulty in implementing an effective replenishment spare parts breakout program. In the opinion of the researcher, this is due to the vast nature of the environment in which the breakout process prescribed in DAR Supp. 6 is tasked to achieve competitive savings. Further, effective breakout depends on the commitment, adequate planning, and timely actions by, acquisition strategists, program managers, contracting

officers and personnel, defense contractors, data managers, and engineering and technical personnel.

The DOD Replenishment Spare Parts Breakout Program does not appear to attempt guiding the actions of all those who must become responsible for an effective breakout program. The DOD Program specifically does not make provision for the following requirements levied by current policy:

1. To consider the Government's right and ability to breakout and competitively procure spare parts in all contracts for defense systems.
2. To discontinue the use of Government specifications and contractor proposed designs which would inhibit subsequent competitive procurement of spare parts.
3. To make breakout of replenishment spare parts a factor in source selection for defense systems.
4. To negotiate contract provisions that reduce the contractor's use of proprietary rights in data.
5. To further mechanize defense data repositories to improve the acquisition, receipt, inspection, and storage and retrieval of technical data.

The shortcomings in the DOD Replenishment Spare Parts Program noted above could be due to the timing of DAR Supp. 6 dated 1 June 1983 and the Secretary of Defense mandated initiatives date 19 August 1983 from which the noted requirements are cited. An informal interview with one of the authors of DAR Supp. 6 confirmed the researcher's misgivings concerning the well written, but apparently supply and acquisition targeted directive as to its intended audience when that author expressed similar concerns [Ref. 29]. The deficiencies in the DOD Program in providing a

comprehensive program with sufficient scope to include guidance for key personnel crucial to the early action necessary for subsequent competitive procurement of spare parts reveals the need for additional guidance to those involved in the systems acquisition process. In view of the environment within which breakout is tasked to accomplish competitive procurement and reduce the costs for spare parts, Chapter V will present factors crucial to successful breakout. A comprehensive approach to replenishment spare parts breakout at MCLB Albany will be offered through an analysis of these crucial factors and the attendant research.

V. A COMPREHENSIVE APPROACH TO BREAKOUT

A. INTRODUCTION

An analysis of a procedure for breakout implementation would most logically involve the identification and treatment of the factors necessary for success in implementation. The objective of the DAR Supp. 6 Replenishment Spare Parts Breakout Program is "...to reduce costs by breakout of parts for purchase from other than the prime weapon system contractor..." by direct purchase from the actual manufacturer or by competitive procedures. [Ref. 7:S6-102] DAR Supp. 6 prescribes specific actions to remove breakout constraints and accomplish direct or competitive procurement. These actions will be presented and analyzed by identifying factors necessary to successfully accomplish the actions. Following the analysis of DAR Supp. 6 prescribed actions, the researcher will present the resulting genesis of a comprehensive approach to breakout for MCLB Albany, Georgia. In so doing, the approach will take into account peculiarities in the acquisition of major systems in the Marine Corps.

B. REMOVING CONSTRAINTS TO BREAKOUT

1. Direct Procurement

As stated earlier, DAR Supp. 6 preference is for competitive procurement. [Ref. 7:S6-104] As such, direct

procurement of a part from the actual manufacturer is treated as an interim status in the progression to competitive procurement of a part. [Ref. 7:S6-37b] The accomplishment of direct procurement of a part from the actual manufacturer necessarily involves identification of the actual manufacturer. Interestingly enough, this seemingly mundane task of identifying an actual manufacturer is the source of some confusion on the part of practitioners. [Ref. 10:p. 1] DAR Supp. 6 defines an actual manufacturer as the manufacturer who has design control for a part who may or may not be the prime contractor. [Ref. 7:S6-103.3] In juxtaposition is the Supplement's stated objective of reducing costs by breakout of parts for procurement from other than the prime weapon system contractor. [Ref. 7:S6-102] A recent GAO study of DAR Supp. 6 provisions points out this inconsistency and recommended that DOD refrain from definition of actual manufacturer. [Ref. 10:p. 4] According to the GAO study, DOD breakout officials agreed that the definition is misleading, although unofficially. [Ref. 10:p. 3] GAO pointed out that a prime contractor who controls the design, but does not produce the part, can be assigned as an actual manufacturer, thereby actually inhibiting breakout as defined in DAR Supp. 6. [Ref. 10:p. 2] Of necessity, a part must be identified before it's source can be identified. The identification of a spare part as an entity usually occurs late in initial production during provisioning conferences with the prime

contractor. /Ref. 1:p. 154/ At this time the contractor provides provisioning parts lists (PPLs) which can be reviewed to determine the actual, and additional, manufacturers or vendors of the part. /Ref. 9/ In many cases the prime contractor is the actual manufacturer of the part and therefore the prime does not identify any other sources. /Ref. 9/ If the prime contractor is not required to identify actual manufacturers and other sources for spare parts, this task devolves to the Government breakout technician during the replenishment cycle in the worst possible conditions due to the passage of time and possibly the timeframe for the prime contract. /Ref. 11/ DAR Supp. 6 points out that the identification of sources for replenishment requires knowledge of manufacturing conditions, processes for safety and critical part considerations, and the availability of adequate technical data. /Ref. 7:S6-102/

2. Competitive Procurement

Current procurement regulations are based on the premise that the best value is received when competitive procurement methods are utilized. /Ref. 7:S6-104/ The DOD Federal Acquisition Regulation (FAR) Supplement hereinafter referred to as DOD FAR Supp., defines price competition as existing if two or more responsive and responsible offerors capable of satisfying the Government's requirements respond to solicitations and independently contend for a contract. The contract will then be awarded to the lowest responsive

and responsible offeror submitting the lowest evaluated price /Ref. 31/. The DAR Supp. 6 breakout screening process is portrayed in a complex continuum towards the desired competitive status of a part. The continuum is fraught with numerous considerations presenting the perceived constraints to breakout. In decision table fashion, the results of these considerations direct the user along different routes of action to either code the part with it's appropriate acquisition method code (AMC) or to remove the constraints to breakout . To help ensure that actions to remove the constraints are cost effective, economic evaluations are injected, subsequent to consideration of the constraints and quantification of the cost of their removal, but prior to their removal /Ref. 7:S6-35/. The 65 decision steps in the DAR Supp. 6 breakout screening process are both portrayed in logical sequence in a summary flowchart and grouped by function in, roughly, progressive phases. /Ref. 7:S6-35/ An analysis of the actions which must be taken to effect breakout to competition was conducted by the researcher and is discussed below.

a. Data Collection

The first task in the DAR Supp. 6 breakout screening process is to collect the available technical data on a part and establish a file to document a complete history of the competitive status and breakout actions accomplished for a given part /Ref. 7:S6-303.1/. Data collection is

complicated for a variety of reasons. [Ref. 18] First the data must be available for collection. The data making up a reprourement data package are not produced until the freezing of system design, so it may well not be available for some one and one half to two years after the production contract award. [Ref. 1:p. 25] Data sufficient for reprourement are often not procured due to competing funds requirements and the lack of planning for competitive spares procurement. [Ref. 18] A GAO audit pointed out that DOD activities have often ordered and paid for data they never received. [Ref. 20:p. 1] The delivery schedule of data items is usually, in practice, left up to the contractor. The GAO audit discovered no evidence that data items due, pending receipt, were followed up as well. [Ref. 20:p. 34] Once received, substantial opportunity exists for losing or misfiling a drawing package with a manual repository system. [Ref. 9:p. 4]

b. Data Evaluation

The evaluation of technical data for reprourement requires assembling the various drawings, specifications and lists into a data package. This application of the data items may well be incidental to each item's initial use, such as for the development of training manuals. A reprourement data package usually contains detailed production drawings, specifications, standards, manufacturing processes, and lists of materials. The data making up a reprourement data

package must be functionally adequate to enable a competent parts supplier to produce the part without additional design efforts on his part. [Ref. 6:p. 5-9] In practice however, the data may not reflect key manufacturing know-how required to produce a part, including tricks of the trade, unstated procedures, or other subtleties which cannot be portrayed in the drawings or specifications. [Ref. 6:p. 5-10] Special skills are required to determine the usability of technical data for reprourement, including the ability to read and understand engineering data, knowledge of the manufacturing techniques and processes involved. [Ref. 6:p. 5-11]

c. Data Completion

The common method utilized in completing a data package found to be deficient for reprourement, is to locate the top and subsidiary drawings and tracing backwards, locate all drawings and specifications noted on each drawing until no additional items can be found. [Ref. 6:p. 5-8] The development of data packages requires knowledge of manufacturing processes and techniques, industry conditions, and post manufacture safety and critical part characteristic considerations. [Ref. 7:S6-102] Complicating the completion of a data package for reprourement is the question of whether the Government has unlimited rights to use the existing, or required but available, data for reprourement. Government policy concerning the procurement of technical data rights, as stated in the DOD FAR Supp. is to acquire only data rights which are

essential to meet the Government's need. /Ref. 31:27.403-2/ Generally speaking, the Government acquires unlimited rights to data developed at Government expense when the basic contract specifies developmental or research work as an element of the contract. /Ref. 19:p. 30/ Typically, the data must be developed by the contractor for his own use in contract performance. /Ref. 19:p. 30/ The FAR allows contractor retention of rights to data developed at the contractor's own expense. Unfortunately, the FAR does not sufficiently define the criteria for classification of data as developed at private expense, which results, in practice, in the relatively unconstrained use of restrictive data markings /Ref. 19:p. 36/. Prolonging the results of indiscriminate application of restrictive markings, the DOD FAR Supp. provides for protection of limited data rights in perpetuity, regardless of technological or other changes which may render the limitations meaningless. /Ref. 31/

A reprourement data package should be completed and constructed from a bidder's viewpoint. If unlimited rights to the manufacturing process is provided, the package should tell exactly how to produce a part. If limited rights are provided, the package should tell the bidder what he must do to manufacture the part. /Ref. 17:pp. 13-22/

d. Technical Evaluation

The purpose of the technical evaluation phase in the DAR Supp. 6 breakout screening process is to determine a part's developmental status, design stability, and whether any critical reliability or safety characteristics exist. These considerations are crucial to the decision to breakout and to development of additional sources [Ref. 7:S6-303.4]. Analytics, a research firm performing ongoing research into improving competition at U.S. Air Force Logistics Centers, noted that a special combination of skills is required in such decisions. The skills cited were the ability to read and understand technical engineering data, knowledge of the specific technical area, and knowledge of the manufacturing techniques and processes available in the area [Ref. 6: [Ref. 6:pp. 5-11]. The DAR Supp. 6 breakout process requires the application of responsible engineering judgement in determinations involving class 1A castings and forgings, requirements for master or coordinated tooling, special testing for precision quality and system integrity, and design procedures. [Ref. 7:S6-303.4] Analytics maintained in a recent report that the personnel with these requisite skills gain their expertise through practical experience over a number of years, without formal training, and are becoming fewer and fewer in number. [Ref. 6:p. 5-11]

e. Economic Analysis

Provision for economic analysis to insure the actions to remove the constraints to breakout are cost effective are injected into the DAR Supp. 6 screening process immediately prior to taking each particular action.

/Ref. 7:S6-357 The process requires the quantification of the various direct and indirect costs to the Government for removing constraints to breakout. The routing directions in the process effect the summation of the costs and the comparison of the total cost to breakout against the projected savings /Ref. 7:S6-357. The projected savings are calculated by multiplying the projected life buy value of the part times either the DAR Supp. 6 assumed 25 per cent savings factor or the factor determined from local conditions and experience.

/Ref. 7:S6-303.57 Economic analysis is severely limited by the lack of recorded information on breakout costs in the transition to competitive procurement. /Ref. 6:pp. 6-77 The difficulties in quantifying costs are exacerbated by such elusive issues as to what reprocurement data should cost.

/Ref. 18; Ref. 197 While the Air Force Logistics Centers (ALCs) utilize AFLC Form 761 to compute and record breakout costs and savings, the basis for the individual costs are not normally described beyond noting the total cost of breakout.

/Ref. 6:pp. 6-77

f. Supply Feedback

To ensure that logistics support deadlines are met in conjunction with efforts to improve the competitive status of a part, the DAR Supp. 6 process provides for compilation of estimated time factors for each breakout action for comparison with required delivery dates. /Ref. 7:S6-303/ DAR Supp. 6 allows complete by-passing of the process for urgent immediate buy requirements and limited screening for immediate buy requirements when time will not allow full screening. /Ref. 7:S6-303.6/

3. Summary

The foregoing analysis and discussion of the factors involved in accomplishing the breakout actions prescribed in DAR Supp. 6 unearthed problem areas on which significant management attention must be focused to achieve successful breakout and cost savings. The following approach to breakout provides a program tailored for use at MCLB Albany.

C. A COMPREHENSIVE APPROACH

1. Introduction

In realization of inherent organizational and resource limitations, the Marine Corps as a matter of policy, satisfies it's requirements for major systems acquisitions through the efforts of the other military services and Governmental agencies. /Ref. 34:pp. 1-4/ Consequently, although several weapon systems are being purchased by the Marine

Corps at Marine Corps Headquarters level, major systems for Marine Corps use are purchased by other Services. Specifically, the Navy Systems Commands, (Sea, Air, and Electronics), and the Army Tank and Automotive Command buy the Marine Corps major systems. /Ref. 1:p. 121/ As a result of the Marine Corps' unique situation in major systems acquisition, the Corps is dependent on the provisioning efforts of the Navy and Army in instances when they manage the prime weapon system contract. /Ref. 1:p. 122/

In carrying out Marine Corps responsibilities for systems acquisition, the Assistant Commandant and Chief of Staff serves as the Acquisition Executive. The Deputy Chiefs of Staff or directors of major staff offices who, by mission, have the responsibility for ensuring the operational capability for a material system function or task, act as Acquisition Program Sponsor, hereinafter referred to as APS for a particular weapon system /Ref. 33:pp. 1-5/. The overall responsibility for each weapon system throughout the acquisition life cycle is exercised by the APS's and supported by various staff principals. These principals from within Headquarters Marine Corps (HQMC), and Marine Corps Development and Education Command (MCDEC), and Marine Corps Logistics Base (MCLB) Albany, have functional responsibilities in system acquisition management /Ref. 33:pp. 1-8/. Key project officers are assigned to acquisition programs by the staff principals and the Commanding General (CG) MCDEC to carry out the detailed

planning and support for the principals. These project officers are the Acquisition Sponsor Project Officers (ASPOs), Acquisition Project Officers (APOs), and Development Project Officers (DPOs). According to intent, the preceding project officers must function as a coordinated team.

[Ref. 33:pp. 1-8] The team members, and the designated representatives of other staff principals with a direct interest, meet in a co-equal status as an Acquisition Coordinating Group (ACG) chaired by the ASPO. Any member of the ACG may call a meeting to exchange information and to recommend policy or guidance for the planning, coordination and direction of a program [Ref. 33:pp. 1-8]. Regardless of the fact that a major system is managed by another military service, the Marine Corps APS will monitor and support the project and acquisition managers of other Services. Through the assistance of the DPO and APO, the ASPO will arrange for liaison, monitoring, coordination, influence, or direct management as required to ensure that Marine Corps objectives are met.

[Ref. 33: pp. 1-11] The Deputy Chief of Staff for Installations and Logistics (I&L) assumes the function of coordinator for the Acquisition Executive at Milestone III, (Production), and retains this responsibility with the APS for the life cycle of a system. [Ref. 33:pp. 1-6] The Marine Corps Logistics Base (MCLB) Albany is responsible for system operational support. The responsibility for initial spare parts is

shared between I & L and MCLB Albany, however Albany has full responsibility for replenishment spare parts. /Ref. 1:p. 18/

2. Implementation In-Process

Draft Marine Corps Order (MCO), Marine Corps Replenishment Parts Breakout Program, MCO 4200.22D, will implement the policies and procedures of DAR Supp. 6 in the Marine Corps. /Ref. 24; Ref. 34/ According to the draft order, Headquarters Marine Corps will assign a Replenishment Spare Parts Breakout Program Manager within Headquarters Marine Corps (Code LMA). The breakout manager will evaluate the effectiveness of the Marine Corps Program by review of the reports required by DAR Supp. 6 and provide the results to the Under Secretary of Defense (Research and Engineering) /Ref. 34/. The draft order requires Headquarters Marine Corps to include the requirement for the acquisition of technical data during system development and production, to allow the breakout of replenishment spare parts, when feasible. Also required is the inclusion of the following Data Item Descriptions (DID's) by the Material Acquisition Support Branch (Code LMA-2) in all acquisitions /Ref. 34:p. 3/:

- a. Contractor Technical Information Coding of Replenishment Parts (DI-P-7128).
- b. Technical Data Information Check List (DI-P-7129).
- c. Procurement Data Packages and Lists (DI-P-4756) (Optional).

The draft order requires the consideration of life-of-type procurement of replenishment spare parts when informed

by the contractor that a part will not be produced for the life of the supported system. This alternative for procurement of spare parts is to be considered in an economic evaluation in relation to the costs of equipment redesign or procurement of technical data and rights for competitive procurement /Ref. 34:p. 67. All other requirements in the draft order are included in directing MCLB Albany to implement the breakout program prescribed in DAR Supp. 6. /Ref. 347

MCLB Albany has placed responsibility for replenishment spare parts breakout with the MCLB Competition Advocate's Office. /Ref. 14; Ref. 187 The newly formed office is being staffed by 27 acquisition, engineering, and technical specialists including procurement specialists, data transcribers, and quality assurance specialists to accomplish a variety of initiatives in competitive acquisition and price control of spare parts. /Ref. 147 Other initiatives in-process which will enhance breakout are improvements in contracting techniques and a mechanized Technical Data Configuration Management System (TD/CMS) to manage the approximately two million drawings in the MCLB Albany data repository /Ref. 8:p. 7; Ref. 247.

3. A Foundation For Breakout

The capability to competitively procure spare parts is heavily dependent on actions taken early in the system acquisition process to identify actual and alternate parts

manufacturers, and to obtain rights to sufficient technical data for reprocurement. [Ref. 6:pp. 1-2; Ref. 18] The development and procurement of spare parts is a complex, interdisciplinary, and time and resource consuming process.

[Ref. 9:Encl. 3] As such, this approach to replenishment spare parts breakout encompasses the basic provisions in the DAR Supp. 6 program, but is broader in scope. The program addresses not only the breakout screening process during initial provisioning and replenishment, but includes other functions crucial to successful breakout throughout the system acquisition process.

a. Acquisition Planning

In the Marine Corps systems acquisition process, the APS is responsible for establishing an acquisition plan at program initiation. [Ref. 34:pp. 1-11] The plan is a guide for the direction and strategy of the acquisition effort. It is normally prepared by the DPO and is updated as the program progresses. In the case of major systems managed by the Army or Navy, a declaration of interest to that Service alerts the appropriate command of Marine Corps acquisition intent. The declaration provides the basis for monitoring and participation in the acquisition efforts of the other Service [Ref. 34:pp. 2-8].

The acquisition strategy is prepared by the DPO within the realm of acquisition planning during concept exploration. [Ref. 34:pp. 3-4] According to the draft Navy

Program Manager's Guide, an acquisition strategy should be tailored to a particular program's needs. Included in the needs cited is the initiation and maintenance of competition [Ref. 35:pp. 2-25]. The guide prescribes full disclosure in the acquisition strategy of what level competition will extend, i.e. system, subsystem, and component. Additionally specified, is disclosure of Government intentions concerning technology transfer to foster competition, plans for procurement data, contractor use of proprietary materials, and the basis for contract incentives [Ref. 35:pp. 2-26]. The Guide stipulates that a clear understanding should be reached between the Navy and its respondents concerning the Navy's needs [Ref. 35:pp. 2-27]. In the opinion of the researcher, a full, up front, expression of Marine Corp intent concerning the competitive procurement of spare parts in the acquisition strategy would assist in laying the necessary foundation for successful breakout and prevent possible misunderstandings. Such a strategy would include the intent to competitively procure spare parts through contractor disclosure of actual and alternate manufacturers, provision of full rights to, and adequate, procurement data packages, and plans for utilization of contract incentives. DOD Directive 5000.1 "Major Systems Acquisition" states that acquisition strategies should be flexible and tailored to the unique aspects of each program. [Ref. 36:p. 17]

In the same vein, data requirements should be tailored to meet specific program needs. [Ref. 6:pp. 5-18] One of the major difficulties in determining reprourement data requirements is a matter of timing.

[Ref. 6:pp. 5-20; Ref. 19:p. 2] It is important to define program requirements for reprourement data early in the acquisition process to alert the contractor to the requirements during system, and data, development to reduce the costs of data. Also of primary importance is the need to delay identification of data required until design is stable

[Ref. 6:pp. 5-19; Ref. 19:p. 3]. Opinions concerning when requirements for reprourement data can be accurately determined vary, but essentially point to tentative identification after Critical Design Review (CDR) during Full-Scale Development and accurate identification after Physical Configuration Audit (PCA) during Production. [Ref. 6:pp. 5-19; Ref. 19:p. 3] With PCA occurring during Production, accurate identification of reprourement data needs can hardly be considered as being early in the systems acquisition process. [Ref. 6:pp. 5-19]

The assignment of competitively restrictive AMC codes, i.e. AMCs 3-5, (see Appendix D), although occurring during late Full-Scale Development or initial Production, establishes the basis for the requirement for reprourement data. [Ref. 6:pp. 5-22] While provisioning and initial AMC screening are two separate processes usually conducted by two separate groups of people, the combination of these functions

could enhance the performance of both processes and increase efficiency. /Ref. 6:pp. 5-22/ The incorporation of breakout screening with existing processes is encouraged by DAR Supp. 6. /Ref. 7:S6-104/

b. Contractual Measures

In Chapter IV, DOD mandated requirements crucial to effective breakout, but not contained in the provisions of DAR Supp. 6, were identified and are now addressed individually.

First, to consider the Government's right and ability to breakout and competitively procure spare parts in all contracts for defense systems. Expressing Marine Corps intent to procure adequate technical data for reprocurement, and to competitively procure spare parts, in the acquisition strategy and carrying this intent out contractually in solicitations, requests for proposal, and contracts, when warranted, should satisfy this requirement.

Secondly, to discontinue the use of Government specifications and contractor proposed designs which would inhibit subsequent competitive procurement of spare parts. During initial production of a weapon system the Government and contractor participate in the provisioning process to determine the range and quantity of spare parts necessary to support a system for a given period of time. /Ref. 9:Encl. 3/ One output of the provisioning process is Source, Maintenance, and Recoverability (SMR) codes. /Ref. 6:pp. 5-22/ The first

two digits of the six digit SMR code constitute alphanumeric Source Codes. Spare parts assigned a Source Code starting with the letter "P", (for procurement), become candidates for Acquisition Method Coding in accordance with the provisions of DAR Supp. 6 [Ref. 6:pp. 5-22; Ref. 37:p. E4617]. Since the AMC code specifies what sources may or may not be utilized, the competitive status of a part is hereby established.

A Headquarters Marine Corps requirement exists that all prime contractors identify the actual manufacturer(s) to parts up to two vendors. Many times, however, the prime contractor is the actual manufacturer and does not identify any other manufacturers [Ref. 9:p. 37].

The DOD Parts Control Program is now mandatory for all programs. [Ref. 1:p. 1567] The Program's objective is to conserve resources and reduce life-cycle-cost by requiring contractor use of military standard or commercial parts to the maximum extent possible during the development, production, and modification of weapon systems.

[Ref. 1:p. 156; Ref. 387] This requirement is implemented by utilization of military documents, standards, lists, and associated data item descriptions in solicitations, requests for proposal, and contracts. [Ref. 1:p. 156; Ref. 38:p. 37]

It would appear to the researcher, that aggressive challenging of restrictive contractor recommended acquisition methods, and fully implementing the Marine Corps requirement

for two parts sources and the provisions of the DOD Parts Control Program would assist in precluding contractor use of source controlled parts.

Third, to make breakout of replenishment spare parts a factor in source selection for defense systems. In Secretary of Defense Weinberger's 25-point memorandum of 29 August 1983, he directed that the Services develop and test a procedure to make breakout of spare parts a factor in source selection for new major systems. /Ref. 57 The Secretary also directed the development of incentives to reward contractors for cost savings generated by their efforts, and provided a recommended test program for implementation. /Ref. 57

The test program centers around a methodology in source selection for award of contracts for Full-Scale Engineering Development. It provides for source selection criteria involving technical factors including a make-or-buy plan, utilization of designs incorporating standard and commercial parts, nonproprietary items, and competitively available vendor material. Management factors included are early breakout, competitive sources for spare parts, review of technical data packages for accuracy and freedom from proprietary restriction, and ongoing efforts to enlarge vendor bases.

The test program requires contractor quantification of the additional effort involved in accomplishing the

above objectives, as specified in his proposal, by separately priced line item. The test program provides for an award fee arrangement in report card form for accomplishment of the above objectives. Award of the fee earned is to be immediate with no rights of appeal.

Lastly, the test program provides for a separate memorandum of agreement between the prime contractor and the Government specifying a set fee (percentage of part price), for royalty or licensing in selected vendor prices. The arrangement would establish the term for which the agreement would be in force and upon whom it would be binding. According to the Secretary's memorandum the implementation of the test program can be implemented immediately, and requires no special approval or authority. /Ref. 5/

Fourth, to negotiate contract provisions that reduce the contractor's use of proprietary rights in data. The expression of Marine Corps intent to purchase reprocurement data and procure spare parts competitively, at the outset, in the acquisition strategy, and in carrying out this intent in solicitations and requests for proposals, should establish the philosophical and legal dialogue necessary for procurement of reprocurement data. /Ref. 6:pp. 5-20/

Adequate planning and use of appropriate DOD FAR Supp. data clauses is crucial to receiving adequate data with unlimited rights for reprocurement. /Ref. 6:pp. 5-8/ The DOD FAR Supp. clauses which are critical to receiving sufficient.

rights, or at least becoming aware of limited rights early in the acquisition process, are DOD FAR Supp. 52.227-7013 Rights in Technical Data and Computer Software and DOD FAR Supp. 52.227-7014 Predetermination of Rights in Technical Data.

/Ref. 16; Ref. 6:pp. 5-16

Additionally, the Office of Naval Research Patent Counsel disclosed in 1979 that the following, or similar provision, could be included in a contract having the basic DOD FAR supp. data clause 52.227-7013, without constituting a deviation /Ref. 32.

Contractor will not incorporate into the hardware or any other product required to be developed or delivered under this contract any item, component, or process developed at the contractor's private expense without first obtaining written permission of the contracting officer.

As stated earlier, the draft Marine Corps order on replenishment spare parts breakout requires including specific data item descriptions (DID's) in all Marine Corps contracts for weapons systems and equipment including (1) DI-P-7128, Contractor Technical Information Coding of Spare Parts, (2) DI-P-7129, Technical Data Information Checklist, and (3) DI-P-4756, Procurement Data Packages and Lists.

/Ref. 34:p. 3

MIL-STD-490, Specification Practices, establishes the content and format of specifications, which when combined with drawings, forms the basis for a technical data package suitable for competitive reprocurement. Specifically, type Clb, "Prime Item Product Fabrication Specifications" contain

the requisite information for reprourement. /Ref. 6:pp. 2-6/ DOD-D-1000B, "Drawings, Engineering and Associated Lists," defines levels of drawings progressing from system design to production. Level 3 drawings provide engineering information sufficient to produce an end item, in quantity, and competitively procure spare parts substantially identical to the original parts. /Ref. 6:pp. 2-6/ If level 3 drawings and associated lists are specified in a contract, the Government should receive adequate data for reprourement, subject to legibility and quality considerations. /Ref. 6:pp. 2-6/

c. Data Management

Upon examination of the various constraints to breakout, problems are aired which would appear to pervade other aspects of data management, including, follow-up, receipt, inspection, acceptance, storage, and retrieval. If Section V of DOD Form DD 1418, Procurement Data Record, is completed during provisioning and initial AMC assignment, the form may be utilized as a due-in data file as well as the individual part breakout file required by DAR Supp. 6.

/Ref. 6:pp. 5-23; Ref. 7:S6-303.1/

Upon receipt of data due-in from a contractor, formal documented reviews should be accomplished prior to acceptance to ensure that the data received is adequate for reprourement, meets the contract specifications, and is legible. /Ref. 6:pp. 2-9/ Liaison with MCLB Albany breakout personnel indicated that timely data evaluation will be

attempted in-house by newly hired engineering personnel in the Competition Advocate's Office. As a back up measure, funds have been requested in the FY1985 Budget for contractual assistance in data evaluation. /Ref. 14; Ref. 18/

4. Breakout Screening

DAR Supp. 6 calls for initial breakout screening of parts entering the inventory and periodic screening of parts according to annual buy value and the assigned review suspense date. /Ref. 7/ As stated earlier, initial screening and AMC assignment could be conducted during provisioning by participation of breakout screening personnel on the provisioning team and the results posted on a DD Form 1418 establishing a part file. /Ref. 6:pp. 5-22/ DAR Supp. 6 requires the application of priorities to concentrate on those parts offering the greatest opportunity for breakout and cost savings. /Ref. 7:S6-104/

As stated earlier, the parts requirement or stratification program at MCLB Albany produces "post grid extract listings." /Ref. 22/ (See Appendix H). These listings provide line-item projected requirements for replenishment spare parts for the following twelve month period in descending annual buy value. /Ref. 22/ Review of these lists for parts with annual buy values over \$10,000 and posting of the current annual buy values to the DD Form 1418 in the individual part files would establish the basis for assignment of part review dates, (Parts with an annual buy value under \$10,000 require

only initial screening and assignment of AMCs).

/Ref. 7:S6-300/ For an initial period during implementation of the methodology offered, part files would of necessity be established from the post grid extract listings.

The accomplishment of periodic screening according to annual buy value and part review date would appear to the researcher to be best served by utilization of post grid extract listings to establish part files and review dates, and utilization of a standard office tickler system. Individual part file folders could be tagged by colored clips signaling the proximity of review dates. This would preclude unnecessary and inefficient review of all part files during periodically scheduled reviews.

5. A Breakout Model

According to current MCLB Albany plans, AMC screening and associated breakout tasks to progressively improve the competitive status of parts will be the responsibilities of various newly hired acquisition, engineering, and technical personnel in the Competition Advocate's Office.

/Ref. 14; Ref. 18/ As noted previously, actions necessary to lay the groundwork for, and successfully accomplish, breakout additionally involve earlier phases of the acquisition process. In the researcher's opinion, guidance from Headquarters Marine Corps is required to enjoin the efforts of the members of the ACG to participate in laying a foundation for breakout in coordination with the efforts of those responsible for

breakout at MCLB Albany. Upon analysis of the DAR Supp. 6 breakout process and decision flowchart, it would appear to the researcher that sufficient guidance exists in the Supplement concerning DOD policy in accomplishing breakout efforts during replenishment. Analysis of the complex, lengthy, 65 step breakout flowchart, additionally reveals a comprehensive procedure which may well identify every conceivable aspect of the breakout decision. /Ref. 14/ As a breakout model, the DAR Supp. 6 process flowchart would appear to abstract and display the requisite considerations involved and actions necessary to effect breakout in the replenishment cycle. /Ref. 14; Ref. 18/ In the researcher's opinion, however, after analysis of the Supplement and discussion with both Marine Corps and Air Force breakout personnel, a simplified procedure for actions leading up to the breakout decision is required. /Ref. 14; Ref. 18; Ref. 22/ As stated earlier, Air Force breakout officials at the Air Logistics Center (ALC's) utilize AFLC Form 761 to both guide breakout personnel in the performance of breakout tasks and record the results of their efforts. /Ref. 18; Ref. 22/

6. Economic Evaluation

Recent research into Air Force use of AFLC Form 761 for breakout by the research firm Analytics, revealed that while the form provides a mechanism for review of a part's competitive status, it does not provide sufficient guidance or documentation for the economic evaluation leading to the

breakout decision. /Ref. 6:pp. 6-7/ DD Form 1418, Data Procurement Record, offered by the researcher to establish a part file and record parts screening is deficient in the same regard as evidenced in Appendix H. In their recent Phase 4 Report, Analytics provided the Air Force with a model to capture the potential cost elements relevant to the economic evaluation in the breakout decision.

/Ref. 6:pp. 3-7/ The Competitive Acquisition and Breakout of Spare (CABs) model first identifies the various nonrecurring and recurring cost elements potentially associated with breakout and then calculates the net savings from breakout.

/Ref. 6:pp. 4-7/ The net savings are equal to the historical percentage of savings times the remaining program life buy value, less the summation of perceived nonrecurring and recurring costs to breakout a given part. /Ref. 6:pp. 4-7/ The various components of recurring and nonrecurring costs in the CAB model are:

a. Recurring Costs (\$)

- (1) Technical assistance.
- (2) Product assurance.
- (3) Risk of non-performance.
- (4) Risk of time-delay.
- (5) Update and distribute data packages.
- (6) Data package verification.
- (7) Solicitation preparation and evaluation.
- (8) Contract administration/termination.

b. Nonrecurring Costs (\$)

- (1) Remaining program life buy value at current unit price.
- (2) Cost of special tooling.
- (3) New source qualification.
- (4) Reverse engineering.
- (5) Initial data package verification.
- (6) Purchase of data rights.
- (7) Purchase of procurement data package.
- (8) First article test and inspection.
- (9) Production and test facility costs billed to the Government.
- (10) Qualification testing billed to the Government.
- (11) Special tooling billed to the Government.
- (12) Variable cataloging for nonstandard parts.
- (13) Bin opening for nonstandard parts.
- (14) Management for nonstandard parts.
- (15) Technical data for nonstandard parts.
- (16) Additional repair tools and test equipment for non-standard parts.

As stated earlier, DOD Form 1418, Procurement Data Record, could be utilized as a due-in data file, and it could be utilized to guide breakout personnel in the technical considerations in breakout. Additionally, the form could be used for documentation of AMC screening and actions taken to improve the competitive status of a part utilizing

section VIII, Remarks. In the opinion of the researcher, the addition of a third preprinted, locally produced, page to DD Form 1418, Section X, would enable use of the form for the complete breakout process. The additional page would list the recurring and nonrecurring cost elements identified in the Analytic's CAB Model, provide space for quantification of the various costs, and provide instructions and space for computing the net savings or loss due to breakout of a part. An example of such a format is provided in Appendix I.

7. Supply Feedback

Under the breakout process and documentation mechanism offered, AMC screening and actions to improve the competitive status of replenishment spare parts is an ongoing process. Breakout personnel interviewed at MCLB Albany intend to attach to each computer generated and item manager "scrubbed" buy recommendation for replenishment spare parts, the individual part breakout file for procurement recommendation to the contracting officer. [Ref. 14] Limited screening of parts not yet screened, for immediate buy requirements, is accomplished under the DAR Supp. 6 process by reviewing the part's technical characteristics and data available and assigning an appropriate AMC with no action taken to improve it's status. [Ref. 7:S6-39] The same approach to facilitate immediate buy requirements could be used with the utilization of DD Form 1418. DAR Supp. 6 allows complete by-passing of the AMC screening process for

urgent immediate buy requirements. [Ref. 7:S6-105] Again, the same approach to facilitate urgent immediate buy requirements could be utilized under the procedure offered.

8. Summary

The Office of Federal Procurement Policy (OFPP) recently identified the DOD Replenishment Spare Parts Breakout Program as the most difficult of current spare parts initiatives to implement. The OFPP stated that DOD must learn how to breakout parts in a cost effective manner. [Ref. 1:p. 44] Subsequent to analysis of the DAR Supp. 6 procedure and discussion with DOD breakout practitioners research indicates the difficulties encountered in implementation of DAR Supp. 6 are twofold. First, the procedure is complex and the flow-chart, while comprehensive, does not lend itself to use by a practitioner. Secondly, the provisions of DAR Supp. 6 center around the replenishment cycle. Key groundwork early in the acquisition process that is crucial to successful breakout is not prescribed in DAR Supp. 6. As such, the DAR Supp. 6 process is not a comprehensive program for the implementation of replenishment spare parts breakout. The program and procedures offered in this Chapter for implementation at MCLB Albany address issues and factors felt to be crucial to successful breakout which span the systems acquisition process.

VI. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions, recommendations, and answers to the research questions are presented as a result of this study.

A. CONCLUSIONS

1. Conclusion No. 1. The DAR Supp. 6 DOD Replenishment Spare Parts Breakout Program is one of the most difficult of current spare parts initiatives to implement. As presented in Chapter III, DOD has experienced considerable longstanding problems in realizing competitive savings through breakout. Historically, spare parts considerations have received low relative priority with the Program Manager's competing objectives of cost, schedule, readiness, and affordability. As a result, acquisition strategies have not focused on the creation and preservation of the necessary philosophical and legal dialogue to obtain actual and alternate manufacturers of parts and the right to sufficient technical data for breakout.

DOD breakout officials and the literature express considerable frustration in efforts to implement the provisions of DAR Supp. 6 as discussed in Chapters III and V. These frustrations center around the difficult environment in which breakout is tasked to produce competitive savings and

the complexity of the DAR Supp. 6 breakout process as presented. In Chapter III it was pointed out that the ability to competitively procure spare parts is largely determined early in the systems acquisition process by personnel not involved, or possibly concerned, with breakout. In Chapter IV, evaluation of the DAR Supp. 6 breakout flowchart emphasized that the process prescribed is sufficiently complex and tedious, and inefficient to preclude effective implementation as presented.

The too late timing of breakout efforts in picking up the pieces to competitively procure spare parts during replenishment, as well as the difficulty in implementing the tedious DAR Supp. 6 process ill-designed for application, create a remarkable challenge to implement the DOD Replenishment Spare Parts Breakout Program.

2. Conclusion No. 2. The DAR Supp. 6 DOD Replenishment Spare Parts Breakout Program is focused on actions during replenishment, while effective breakout is dependent on actions early in the systems acquisition process. Chapter IV of this study provides an evaluation of the DAR Supp. 6 breakout program. Other than the general requirement to identify, select, and screen parts for breakout as early as possible, no further prescription of actions earlier in the systems acquisition process than during replenishment in Production/Deployment is offered by DAR Supp. 6. It was established in Chapter III that the earliest that parts can

be realistically identified for screening procedures is subsequent to the contractor providing a Government approved provisioning parts list in provisioning conferences during initial production.

Chapter IV pointed out that unless several considerations are satisfied early in the systems acquisition process, breakout is asked to operate under the worst possible conditions. Adequate planning for competitive procurement of spare parts must begin early in the systems acquisition process so that actual manufacturers and alternate sources are identified, and so that sufficient rights to technical data suitable for reprocurement are obtained in a timely manner.

Chapter V further established that accomplishment of these crucial tasks involve actions by various acquisition personnel which span the systems acquisition process starting as early as the acquisition strategy in Concept Exploration. The Government's acquisition strategy sets the stage for contractual content which is crucial to obtaining the actual and alternate manufacturers of parts in a system as well as the rights to adequate reprocurement data..

3. Conclusion No. 3. The DAR Supp. 6 DOD Replenishment Spare Parts Breakout Program does not provide guidance for acquisition personnel whose actions are crucial to breakout. It was revealed in Chapter IV that DAR Supp. 6 does not

provide guidance to accomplish the following requirements levied by current Department of Defense policy on breakout:

- a. To consider the Government's rights and ability to breakout and competitively procure spare parts in all contracts for defense systems.
- b. To discontinue the use of Government specifications and contractor proposed designs which would inhibit subsequent competitive procurement of spare parts.
- c. To make breakout of replenishment spare parts a factor in source selection for defense systems.
- d. To negotiate contract provisions that reduce the contractor's use of proprietary rights in data.
- e. To further mechanize defense data repositories to improve acquisition, receipt, inspection, and storage and retrieval of technical data.

Chapter IV established that the accomplishment of these requirements depends on the commitment, adequate planning, and timely actions by acquisition strategists, program managers, contracting officers, data managers, and engineering and technical personnel. The successful accomplishment of breakout requires a program sufficiently broad in scope to harness the commitment and efforts of these key players who must become responsible for an effective breakout program.

4. Conclusion No. 4. The DAR Supp. 6 breakout process sufficiently captures the factors in the breakout decision but is too complex, tedious, and is inefficient for day-to-day use by breakout technicians. The DAR Supp. 6 breakout process was evaluated in Chapter IV. The process was found

to sufficiently address the factors in the breakout decision involving technical data, design, producability, quality control, special tooling and equipment, and economic feasibility to breakout. Chapter V examines the complex, sixty-five step breakout flowchart. Subsequent to the researcher's analysis of the flowchart and discussion with both Marine Corps and Air Force breakout personnel, it was established that a simplified procedure is required for effective implementation. The process, while structured in logical step sequence, is excessively tedious and does not take into account the various organizational functions necessary to accomplish the myriad of breakout tasks. As such, the process, while comprehensive, is highly inefficient and infeasible for day-to-day use.

B. RECOMMENDATIONS

1. Recommendation No. 1. Headquarters Marine Corps should provide additional guidance to Marine Corps acquisition personnel whose actions affect the success of breakout. As established in Chapters IV and V of this research, the successful accomplishment of breakout requires a program sufficiently broad in scope to harness the commitment and efforts of key players in the system acquisition process. These personnel include acquisition strategists, program managers, contracting officers, data managers, and engineering and technical personnel.

It is recommended that draft Marine Corps Order 4400.22D, Marine Corps Replenishment Spare Parts Breakout Program discussed in Chapters III and V be amended to provide additional guidance to acquisition personnel. Specific elements of this guidance will be addressed in the respective recommendations.

2. Recommendation No. 2. Headquarters Marine Corps should require Acquisition Program Sponsors to ensure expression in all systems acquisition strategies, Marine Corps intent to competitively procure spare parts through contractor disclosure of actual and alternate manufacturers and provision of full rights to technical data for reprourement. In Chapters IV and V, it was pointed out that stating this intent up front in the acquisition strategy, should set the stage for competitive procurement of spare parts and prevent future misunderstandings.

An amendment to draft MCO 4400.22D providing direction to Acquisition Program Sponsors ensuring expression in all systems acquisition strategies, Marine Corps intent to competitively procure spare parts through contractor disclosure of actual and alternate manufacturers and provision of full rights to technical data for reprourement should establish this requirement for acquisition strategies.

3. Recommendation No. 3. Headquarters Marine Corps should require close liaison between Acquisition Program Sponsors (APSS), and the MCLB Albany Competition Advocate to ensure proper emphasis of competitive spare parts procurement. As discussed in Chapter III, the MCLB Albany Competition Advocate is tasked with accomplishing replenishment spare parts breakout in the Marine Corps. It was pointed out in Chapter IV, however, that the successful accomplishment of breakout is dependent on timely actions by acquisition strategists, program managers, contracting officers, data managers, and engineering and technical personnel.

Mandating close liaison between the MCLB Albany Competition Advocate's office and the APS, (with total program responsibilities), by active participation in all Acquisition Coordinating Group (ACG) meetings, from the inception of Marine Corps involvement in a program, should provide sufficient means for emphasizing the competitive procurement of spare parts. An amendment to draft MCO 4400.22D requiring MCLB Albany Competition Advocate representation in all Acquisition Coordinating Group conferences from the beginning of the acquisition process, to ensure that the Government's right and ability to breakout and competitively procure spare parts is considered in all requests for proposals and contracts for weapons systems and equipment would establish this mandate.

4. Recommendation No. 4. Headquarters Marine Corps should require Acquisition Program Sponsors to recommend to the Service buying a weapon system for Marine Corps use, implementation of Defense Secretary Weinberger's test program to make breakout of spare parts a factor in source selection in new Full-Scale Engineering Development Contracts for major systems. This test program was discussed in detail in Chapter V. The test program is mandated in the Secretary of Defense's Twenty Five Point Memorandum to the Service Secretaries of 19 August 1983. [Ref. 57] According to the memorandum, the program can be implemented by contracting officers, in the form presented, immediately, with no special authority.

It was established in Chapter III that the Marine Corps does not procure its major systems. As such, implementation of the test program involves recommending its use by the cognizant Service's buying activity. This requirement for Acquisition Program Sponsors can be established by an amendment to draft MCO 4400.22D requiring Acquisition Program Sponsors recommend to Services buying a weapon system for Marine Corps use, implementation of Defense Secretary Weinberger's test program to make breakout of spare parts a factor in source selection.

5. Recommendation No. 5. Headquarters Marine Corps should require use of DOD FAR Supp. data clauses 52.227-7013 Rights in Technical Data and Computer Software, 52.227-7014

Predetermination of Rights in Technical Data, and the following additional clause, in all contracts for weapons systems and equipment /Ref. 32/:

Contractor will not incorporate into the hardware or any other product required to be developed or delivered under this contract any item, component, or process developed at the contractor's private expense without obtaining the written permission of the contracting officer.

Chapter V discussed the current DOD policy requirement to negotiate contract provisions that reduce the contractor's use of proprietary rights in data. It was established in Chapter V that use of these standard DOD FAR Supp. data clauses is critical to receiving sufficient data rights or at least becoming aware of limited rights early in the systems acquisition process. It was additionally established in Chapter V that the foregoing additional clause could be included in a contract having the base DOD FAR Supp. data clause 52.227-7013 without constituting a deviation.

The requirement for use of these clauses should be implemented by amendment to draft MCO 4400.22D requiring Acquisition Program Sponsors to ensure that the standard DOD FAR Supp. data clauses and additional clause as stated herein be included in all contracts for weapons systems and equipment.

6. Recommendation No. 6. Headquarters Marine Corps should establish the requirement for MCLB Competition Advocate and Small and Disadvantaged Business Utilization (SADBU)

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DEVELOPMENT OF THE MARINE CORPS LOGISTICS BASE ALBANY
REPLENISHMENT SPARE PARTS BREAKOUT PROGRAM(U) NAVAL
POSTGRADUATE SCHOOL MONTEREY CA W F JOHNSON DEC 84

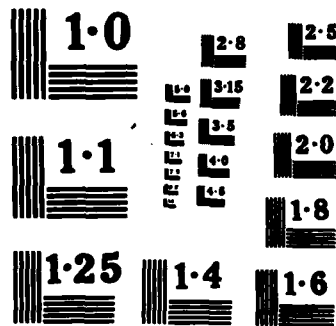
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Specialist representation at combined Provisioning/Aquisition Method Coding (AMC) Conferences. As discussed in Chapter II, spare parts are first identified in provisioning from Government approved provisioning parts lists. Chapter IV describes the provisioning and AMC assignment process and the commonality in the processes with a respect to breakout. The initial competitive status of a part is established upon assignment of Source, Maintenance, and Recoverability Codes. The two digit Source Code establishes whether a part will be procured and the source of procurement. This coincides with the assignment of the acquisition method code which states the specific competitive status of the part. Combining provisioning and AMC conferences takes advantage of the commonality of the two processes and enhances efficiency as discussed in Chapter IV. Mandatory Competition Advocate and SADBUs representation at the conferences should ensure aggressive challenging of restrictive contractor recommended acquisition methods and Small Business participation in AMC conferences as required by DAR Supp. 6.

Implementation of this requirement could be accomplished by mandating this recommendation, as stated herein by amendment to draft MCO 4400.22D.

7. Recommendation No. 7. Marine Corps Logistics Base Albany, Georgia should utilize Government approved Provisioning Parts Lists (PPLs) for initial breakout screening of

replenishment spare parts entering the inventory. DAR Supp. 6 requires breakout screening as early as possible to identify constraints to breakout and improve the competitive status of spare parts initially, upon parts entering the inventory, and subsequently, by periodic screening, based on projected annual buy value and individual part AMC review date. Chapters II and IV established that the earliest a part can be identified for breakout screening is upon contractor provision of a Government approved PPL in provisioning conferences during initial production. Screening of PPLs for contractor recommended acquisition methods should satisfy the requirements of DAR Supp. 6 for initial screening, upon parts entering the inventory.

Implementation of this procedure should be accomplished by including this requirement as stated in the recommendation in an amendment to draft MCO 4400.22D.

8. Recommendation No. 8. Marine Corps Logistics Base Albany should establish an Acquisition Method Code (AMC) review date tickler system. This system would ensure timely review of AMC's as required by DAR Supp. 6.

As stated in Chapter V the parts requirement or stratification program at MCLB Albany produces post grid extract listings. These listings provide line-item projected requirements for replenishment spare parts for the following twelve month period in descending annual buy value. It was established in Chapter V that periodic screening according to

annual buy value and part review date could be accomplished by utilization of post grid extract listings to identify parts with annual buy value over \$10,000 and utilization of a standard office tickler file system to review parts by review date.

As discussed in Chapter V, individual part file folders could be tagged by colored clips signaling the proximity of review dates. This procedure would preclude unnecessary and inefficient review of all part files during periodically scheduled reviews.

Implementation of a tickler system should be mandated in the MCLB Albany implementing instruction for MCO 4400.22D. The specific office procedure to accomplish the system should be included in the Competition Advocate's Office standard operating procedures.

9. Recommendation No. 9. Marine Corps Logistics Base Albany, Georgia should utilize DOD Form DD1418, Procurement Data Record as analyzed in this research to guide breakout personnel in assignment and review of Acquisition Method Codes, (AMC's), improving the competitive status of spare parts, making economic evaluations for breakout, managing data due from contractors and documenting actions taken. As established in Chapters IV and V, an existing DOD Form, 1418, can be utilized for breakout. The form provides a breakout guide and means for recording provisioning data including the factors involved in the breakout decision,

initial AMC assignment, parts sources, breakout efforts, and with the additional pages provided in Appendix I of this research, a comprehensive economic analysis for breakout. As discussed in Chapters IV and V, use of DD Form 1418 additionally establishes a due-in data file for any technical data to be delivered to the Government. Timely followup by breakout technicians would help ensure receipt of data ordered in the systems contract.

Implementing the use of DD Form 1418 should be accomplished by requiring it's use in MCLB Albany's implementing instruction of draft MCO 4400.22D, (The draft order requires an implementing directive). The form as adapted in this research, Appendices G and I, should be made an enclosure to the MCLB implementing instruction.

C. ANSWERS TO RESEARCH QUESTIONS

The subsidiary research questions posed at the beginning of the study are specifically addressed followed by a treatment of the primary research question.

1. Subsidiary Question No. 1. What are replenishment spare parts and how are these parts acquired through a breakout program? Replenishment spare parts are defined in Chapter I as those consumable or repairable parts purchased, after provisioning of a part, for replacement, overhaul, and repair of equipment.

Replenishment spare parts are procured in an ongoing process described in Chapter II. Chapter III provides an overview of the process at MCLB Albany. Basically, requirements for replenishment spare parts from repair and maintenance actions in the field are compiled by an automated inventory control system which produces computer generated purchase requests. These requests are screened for errors and are submitted to the Contracting Officer for procurement action.

Chapter II provides an overview of a breakout program as prescribed in DAR Supp. 6. The same actions are taken to acquire replenishment spare parts under breakout, plus some additional ones. During provisioning, which occurs in initial production, parts are assigned Acquisition Method Codes which describe the competitive status of the part. Under a breakout program, continuing action is taken to improve the competitive status of a part for the life of the part or until it can be procured competitively. The Contracting Officer is provided an individual breakout file with each procurement request in which the current acquisition method recommended as well as available sources are documented.

2. Subsidiary Question No. 2. What are the major objectives and requirements of current U.S. Marine Corps regulations and policy on replenishment spare parts breakout? As portrayed in Chapter III, there are no current Marine

Corps regulations on replenishment spare parts breakout. MCLB Albany is in the process of implementing the policy and provisions of DAR Supp. 6 until Headquarters Marine Corps publishes an implementing order. A draft Marine Corps Order, Marine Corps Replenishment Spare Parts Breakout Program, MCO 4200.22D is in process.

The Major objectives and requirements of draft MCO 4200.22D are /Ref. 34/:

a. Objectives:

- (1) To reduce costs by breakout of parts for purchase from other than the prime weapon system contractor while maintaining the integrity of the system and equipment in which the parts are to be used.
- (2) To identify and screen high dollar spare parts which account for the preponderance of spare parts procurement dollars as early as possible.
- (3) To prepare lists of all parts projected for purchase during the subsequent twelve month period with an annual buy value exceeding \$10,000.
- (4) To accomplish follow-on reviews of Acquisition Method Codes assigned.
- (5) To identify special tooling and special purpose test, measurement, and diagnostic equipment required for production of high dollar spare parts.

b. Requirements:

- (1) Assign a replenishment spare parts breakout program manager at Headquarters Marine Corps.
- (2) Evaluate program effectiveness by review of reports required by DAR Supp. 6.
- (3) Include specific data item descriptions for procurement of necessary technical data in all acquisitions.

- (4) Implement the policy and provisions of DAR Supp. 6.
- (5) Consider life-of-type procurement as an alternative to competitive procurement when parts will not be produced for the life of a weapon system.

3. Subsidiary Question No. 3. What are the key phases of the acquisition process during which breakout efforts to improve the competitive status of a part for the life of a part or until it has reached competitive status? Chapter II describes this process.

Chapter V offers a comprehensive approach to accomplishing breakout which spans the acquisition process. Statement of Government intent to buy data for reprourement, and procure spare parts competitively, could be included in the acquisition strategy during Concept Exploration. Carrying this objective through requests for proposal and contracts, through the acquisition phases to production, should provide the necessary philosophical and legal dialogue to receive adequate rights to data.

The DOD Parts Control Program, requiring contractors to use standard military and commercial parts to the maximum extent possible in system design, is now mandatory for all programs. Design occurs early in the acquisition process. DOD has mandated a test procedure to make spare parts breakout a factor in source selection of Full-Scale Development contracts for major systems.

Tentative identification of requirements for repro-curement data can be determined after Critical Design Review during Full-Scale Development. Accurate identification of procurement data requirements is delayed until after Physical Configuration Audit during Production.

Adequate planning and use of the appropriate DOD FAR Supp. data clauses, discussed in Chapter V, are crucial to receiving sufficient rights to repro-curement data or at least becoming aware of limited rights early in the system acquisition process.

Assignment of a part's initial competitive status occurs in Acquisition Method Coding conferences during initial production. Aggressive challenging of restrictive contractor recommended codes should be made at this time.

Breakout screening is required upon a part entering the inventory during provisioning, usually in initial production, and periodically during the replenishment cycle in Production/Deployment. The actions prescribed in DAR Supp. 6 to improve the competitive status of a part center around the replenishment cycle. As stated earlier, breakout efforts are to continue for the life of a part or until the part can be procured competitively.

4. Subsidiary Question No. 4. What is the role of technical data in replenishment spare parts breakout? An adequate technical data package is necessary to develop qualified

alternate sources for a part which has previously been restricted to sole source procurement. These additional sources make competitive procurement methods possible as discussed in Chapter II. The data making up a reprocurement data package must be functionally adequate to enable a competent supplier in the same field to produce the part without additional design effort on his part.

5. Subsidiary Question No. 5. What is the scope of application of the MCLB Albany Replenishment Spare Parts Breakout Program and what decision-making process is used in this program? The MCLB Albany Replenishment Parts Breakout Program is described in Chapter III. At the present time, the program is not fully developed. Screening of projected annual buy listings during the replenishment cycle has resulted in breakout actions, and in some cases savings have been realized. The program is not instituted as an ongoing process, however. Groundwork early in the system acquisition process crucial to successful breakout is not being established. Current initiatives such as the hiring of engineering and technical talent, mechanized data management, and improvement in contracting techniques should enhance the current scope of the program.

The decision making process used by MCLB Albany breakout personnel involves following the DAR Supp. 6

sixty-five step process. No other decision models, processes, or forms such as Air Force AFLC Form 761 are utilized.

6. Subsidiary Question No. 6. What are the factors to be considered in the breakout decision? The DAR Supp. 6 breakout process provides an exhaustive review of the various technical, legal, and economic factors involved in the decision to breakout a part. Chapter V provides a discussion of the factors in each phase of the breakout process. The factors by phase include:

a. Data Collection, Evaluation, and Completion

- (1) Adequacy of available data for procurement.
- (2) Whether the data can be developed into a reliable data package.
- (3) Whether the Government has sufficient rights to date.
- (4) Whether the Government can buy sufficient rights.

b. Technical Evaluation

- (1) Whether design is stable.
- (2) Whether a satisfactory part is presently being produced.
- (3) Whether a qualified source exists.
- (4) Whether the part requires prior qualification testing.
- (5) Determining whether the test agency is the prime, Government, or independent.
- (6) Determining who is responsible for quality control.
- (7) Whether a new source can be assigned responsibility for quality control.

- (8) Whether tooling or special equipment is required to produce the part.
- (9) Whether the Government possesses the tooling or equipment.

c. Economic Evaluation

- (1) Quantification of the various cost to breakout.
- (2) Calculation of a local savings factor due to breakout.
- (3) Whether savings factor times remaining program life buy value is greater than the total cost to breakout.

d. Supply Feedback

- (1) Whether the Item Manager can accept late delivery.
- (2) Whether total time to breakout exceeds required delivery date.

7. Subsidiary Question No. 7. How could the current scope and methodology of breakout efforts at MCLB Albany be expanded and improved? Chapter V offered a comprehensive approach to breakout at MCLB Albany. As discussed in Chapter V, adequate planning to enable successful breakout must begin early in the systems acquisition process.

Early MCLB Albany input into acquisition planning and the acquisition strategy could be accomplished by MCLB Albany representation in the Acquisition Coordinating Group (ACG) for all weapon systems. This input should emphasize Marine Corps intent to purchase data for reprourement and competitively procure spare parts as well as ensure that this objective is carried out contractually in requests for proposal, source selection, and contracts.

Active breakout team participation in provisioning conferences and Acquisition Method Code (AMC) assignment should help prevent later problems with restrictive codes assigned. Documentation of this screening of parts entering the inventory and periodic screening of parts over the \$10,000 economic threshold by review date should ensure current and valid AMC's.

Utilization of newly hired technical and engineering talent in the Competition Advocate's office should enable ongoing breakout efforts to improve the competitive status of parts. Implementation of the Technical Data/Configuration Management System (TD/CMS) will facilitate technical data management and completion of reprourement data packages. Data evaluation could be accomplished by engineering and industrial specialists in the Competition Advocate's office.

8. Primary Research Question. What should be the major characteristics of an effective replenishment parts breakout decision-model for use at MCLB Albany?

The DAR Supp. 6 flowchart was analyzed in Chapter IV. The flowchart provides a logical sequence of the many steps and decisions involved in breakout screening and improving the competitive status of a part including acquisition method coding and review of a part. From the analysis and discussion of the process with Marine Corps and Air Force breakout personnel, a decision-model or form should provide a medium

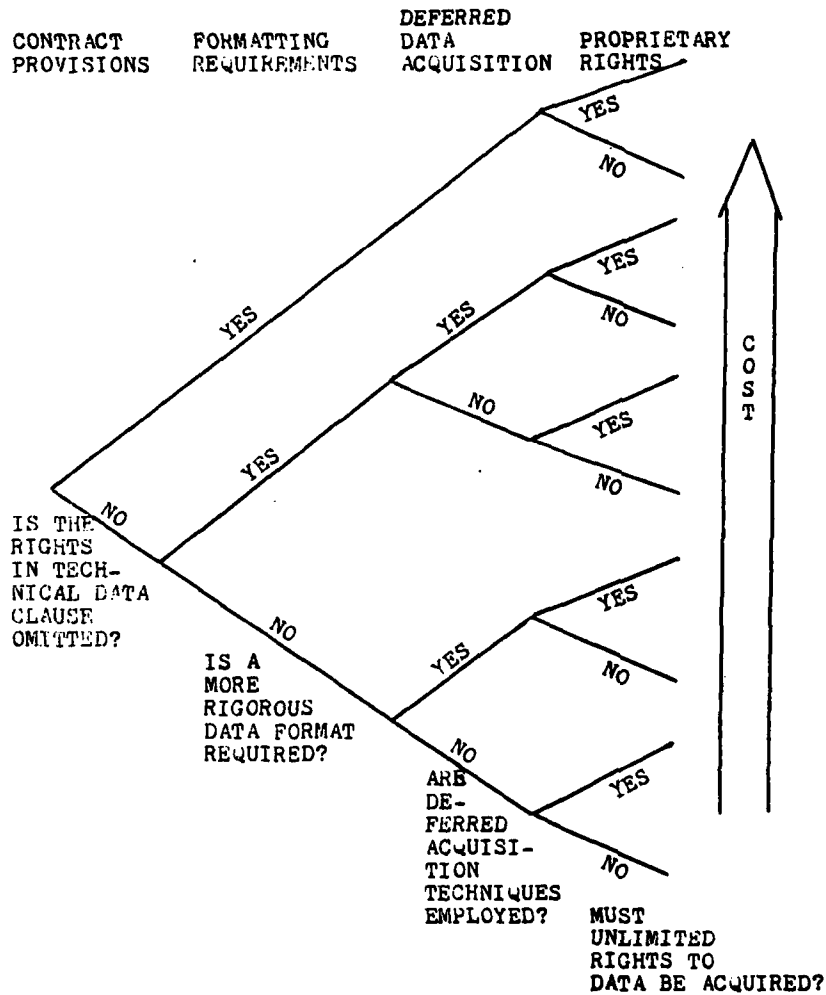
for establishing a part file upon initial assignment of Acquisition Method Code, (AMC) and record subsequent AMC screening. The medium should provide a guide to alert or remind the breakout technician of the factors to be considered in the breakout decision and provide a means to record the results of his decision(s). Additionally, the decision medium should provide a means to quantify the time and costs to breakout and calculate the expected savings from breakout.

APPENDIX A
INTERVIEW QUESTIONS

1. At what level at MCLB Albany is the replenishment spare parts breakout program managed and why?
2. What are the published standard operating procedures for the program?
3. What are the requirements of Marine Corps orders on replenishment spare parts breakout?
4. What are the requirements of MCLB Albany orders on replenishment spare parts breakout?
5. Who are the key players in the breakout decision-making process?
6. When and why was replenishment spare parts breakout first accomplished at MCLB Albany?
7. What has been involved in the evolution of the replenishment spare parts breakout program?
8. What are the driving forces behind the breakout decision?
9. Has the program been effective?
10. When in the acquisition process is breakout of replenishment spare parts breakout accomplished?
11. When in the part life-cycle or supported system life-cycle is breakout accomplished?
12. What is the role of technical data in replenishment spare parts breakout?
13. What are problems involved in breakout efforts?
14. What methodology is utilized to determine whether a part is suitable for breakout
15. Is the use of a decision-making model or checklist utilized? If so, what are it's key features?

APPENDIX B

FACTORS AFFECTING THE COST OF REPROCUREMENT DATA



SOURCE: Lamb, A. R., Lieutenant Colonel, U.S. Air Force, What Should Reprocurement Data Cost? M.S. Thesis, Air Force Institute of Technology, August 1974, Figure 1.

APPENDIX C

AFLC FORM 761
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PREVIOUS EDITIONS ARE OBSOLETE

APPENDIX D
ACQUISITION METHOD CODES (AMC)

<u>AMC</u>	<u>Explanation</u>
1	Item screened and suitable for competitive acquisition.
2	Item screened and suitable for competitive acquisition for the first time.
3	Acquire item directly from the actual manufacturer whether or not the prime contractor is the actual manufacturer.
4	Acquire item directly from the actual manufacturer for the first time whether or not the prime contractor is the actual manufacturer.
5	Acquire item from the prime contractor even though the engineering data identify the Federal Supply Code for Manufacturers (FSCM) and the part number from a source other than the prime contractor.

APPENDIX E
ACQUISITION METHOD SUFFIX CODE (AMSC)

<u>AMSC</u>	<u>Explanation</u>	<u>Valid AMCS</u>
A	Government rights to data questionable.	1-5
B	Source Control Item.	1-4
C	Procure from source approved by design control activity.	1-4
G	Government has unlimited rights to data, and data package is complete.	1,2
H	Inadequate data to procure from other than present source(s).	1-5
K	Part must be produced from class 1A castings (controlled source).	1,2
L	Part under \$10,000 screening threshold but screened for known sources.	1-5
M	Master or coordinated tooling not owned or not available.	1-4
N	Part requires special testing.	1,2
P	Rights to data legally unavailable.	1-5
R	Data and or rights not owned by the government and uneconomical to buy.	1-5
T	Acquisition of part covered by Qualified Products List (QPL).	1,2
U	Part uneconomical to compete.	3-5
V	High reliability part.	3-5
Y	Design of part unstable.	3-5

APPENDIX F
BREAKOUT IMPROVEMENT EFFORTS

The DOD Replenishment Spare Parts Breakout Program, DAR Supplement Number 6, stipulates that breakout efforts will continue for the life cycle of a part or until such time as the part is coded as follows:

<u>AMC/AMSC</u>	<u>Explanation</u>
1G	Item suitable for competitive acquisition; data complete with unlimited rights.
2G	Item suitable for competitive acquisition for first time; data complete with unlimited rights.
1K	Item suitable for competitive acquisition; must be produced from class A castings.
2K	Item suitable for competitive acquisition for first time; must be produced from class 1A castings.
1M	Item suitable for competitive acquisition; master tooling required.
2M	Item suitable for competitive acquisition for first time; master tooling required.
1N	Item suitable for competitive acquisition; requires special testing.
2N	Item suitable for competitive acquisition for first time; requires special tooling.
1T	Item suitable for competitive acquisition; controlled by QPL.
2T	Item suitable for competitive acquisition for first time; controlled by QPL.

APPENDIX G

PROCUREMENT DATA RECORD					
NAME AND ADDRESS OF CONTRACTOR OR SUPPLIER			PROCUREMENT ACTION CODE		
			CONTRACTOR RECOMMENDED CODE		
			CODE (FMC)		
			DATE		
			DATE		
NEXT REVIEW ACTION					
CONTRACTOR OR SUPPLIER			GOVERNMENT		
<input type="checkbox"/> NEEDED <input type="checkbox"/> NOT NEEDED			<input type="checkbox"/> NEEDED <input type="checkbox"/> NOT NEEDED		
DATE			DATE		
SECTION I - IDENTIFICATION					
1 FPM		2a PART NUMBER		2b NOMENCLATURE	
3a SPECIFICATION OR SOURCE CONTROL NUMBER		3b FCSM		4a CONTRACT NUMBER	
4c CONTRACT ITEM NUMBER		4d CONTRACT MODEL NUMBER		4e CONTRACTOR METHOD OF PROCUREMENT	
				<input type="checkbox"/> MAKE <input type="checkbox"/> SOLE <input type="checkbox"/> COMPETITIVE	
SECTION II - PROVISIONING INFORMATION					
5 SOURCE DOCUMENT REFERENCE			6 SOURCE CODE		
7a ESTIMATED UNIT COST			7b ESTIMATED ANNUAL ISSUES		
\$					
7c ESTIMATED ANNUAL COST			8 ESTIMATED PRODUCTION LEAD TIME (Weeks)		
\$					
SECTION III DESIGN STATUS					
9 <input type="checkbox"/> STABLE <input type="checkbox"/> UNSTABLE					
SECTION IV MANUFACTURING CRITERIA					
10 MASTER TOOLING		YES	NO	14 HIGH REJECTION	
11 SPECIAL TESTS OR INSPECTION				15 HIGH RELIABILITY	
12 CLASS 1 CASTINGS OR FORGINGS				16 OTHER	
13 SPECIAL PROCESS OR MATERIAL					
SECTION V PROCUREMENT DATA PACKAGE					
17 CONTRACT REQUIRES DELIVERY OF ADEQUATE PROCUREMENT DATA		YES	NO	18c LIMITATIONS ON USE OF DATA INVOLVED	
18a CAN GOVERNMENT ACQUIRE PROCUREMENT DATA NOT REQUIRED BY CONTRACT				18d CAN GOVERNMENT ACQUIRE UNLIMITED RIGHTS	
18b ESTIMATED COST OF ADDITIONAL PROCUREMENT DATA \$		18e ESTIMATED COST OF OBTAINING UNLIMITED RIGHTS \$			
SECTION VI TOOLING AND FACILITIES					
19a SPECIAL TOOLING		19b OWNERSHIP		19c LOCATION (FMC)	
<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> GOV'T <input type="checkbox"/> PRIME <input type="checkbox"/> SUPPLIER			
19d AVAILABLE FOR OTHER PROGRAMS		19e OTHER FACTORS		19f ESTIMATED COST	
<input type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> YES <input type="checkbox"/> NO		\$	
20. SPECIAL PRODUCTION FACILITIES				21a SPECIAL TEST EQUIPMENT	
<input type="checkbox"/> YES <input type="checkbox"/> NO				<input type="checkbox"/> YES <input type="checkbox"/> NO	
				21b OWNERSHIP	
				<input type="checkbox"/> GOV'T <input type="checkbox"/> PRIME <input type="checkbox"/> SUPPLIER	

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APPENDIX G

SECTION VII - QUALIFICATION, INTEGRATION, RELIABILITY TESTING							
COMPLETE IF SECTION IV - 11 CHECKED "YES" . EXPLAIN FACTS IN "REMARKS" SECTION		IDENTIFY SPECIFICATIONS					
22a QUALIFICATION TESTING <input type="checkbox"/> YES <input type="checkbox"/> NO		24 ESTIMATED TIME AND ADDITIONAL COST TO GOVERNMENT					
22b INTEGRATION TESTING <input type="checkbox"/> YES <input type="checkbox"/> NO		QUALIFICATION TESTING	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center; padding: 2px;">TIME</th> <th style="width: 50%; text-align: center; padding: 2px;">COST</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"></td> <td style="text-align: center;">\$</td> </tr> </tbody> </table>	TIME	COST		\$
TIME	COST						
	\$						
22c RELIABILITY TESTING <input type="checkbox"/> YES <input type="checkbox"/> NO		INTEGRATION TESTING	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> </tbody> </table>				
23 RESPONSIBLE AGENCY <input type="checkbox"/> GOVERNMENT <input type="checkbox"/> PRIME <input type="checkbox"/> SUPPLIER		RELIABILITY TESTING	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> </tbody> </table>				
SECTION VIII - REMARKS (IF ADDITIONAL SPACE IS NEEDED FOR REMARKS, USE ADDITIONAL PAPER)							
SECTION IX - CONTRACTOR OR SUPPLIER APPROVAL							
PREPARED BY (TYPED NAME AND SIGNATURE)		TELEPHONE NUMBER AND EXTENSION					
APPROVED BY (TYPED NAME AND SIGNATURE)		DATE	TELEPHONE NUMBER AND EXTENSION				

Page 2 of 2 Pages

APPENDIX H
APPORTIONMENT YEAR BUYS FROM STRATIFICATION

PSA	STOCK	DATE	ITEM	UNIT	SOURCE	APPROX	APPROX	APPROX
NO	NO	MM	NAME	PRICE	SMC	INIT	DATE	DATE
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16
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19	19	19	19	19	19	19	19	19
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23	23	23	23	23	23	23	23	23
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47	47	47	47	47	47	47	47	47
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52	52	52	52	52	52	52	52	52
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71	71	71	71	71	71	71	71	71
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87	87	87	87	87	87	87	87	87
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89	89	89	89	89	89	89	89	89
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93	93	93	93	93	93	93	93	93
94	94	94	94	94	94	94	94	94
95	95	95	95	95	95	95	95	95
96	96	96	96	96	96	96	96	96
97	97	97	97	97	97	97	97	97
98	98	98	98	98	98	98	98	98
99	99	99	99	99	99	99	99	99
100	100	100	100	100	100	100	100	100

APPENDIX I
ECONOMIC ANALYSIS

Quantify the reasonably foreseen costs to breakout of those listed below in dollars. Quantify any additionally foreseen costs under (Other) and provide a brief explanation.

Recurring Costs

1. Technical Assistance.
2. Product Assurance.
3. Risk of Non-Performance.
4. Risk of Time-Delay.
5. Update and Distribute Data Packages.
6. Data Package Verification.
7. Solicitation Preparation and Evaluation.
8. Contract Administration/Termination.
9. Other.

Total Recurring Cost _____

Nonrecurring Costs

1. Remaining Program Life Buy Value at Current Price.
2. Cost of Special Tooling.
3. New Source Qualification.
4. Reverse Engineering.
5. Initial Data Package Verification.
6. Purchase of Data Rights.
7. Purchase of Procurement Data Package.

8. First Article Test and Inspection.
9. Production and Test Facility Costs.
10. Qualification Testing.
11. Special Tooling.
12. Variable Cataloging for Nonstandard Parts.
13. Management for Nonstandard Parts.
14. Technical Data for Nonstandard Parts.
15. Additional Repair Tools and Test.
16. Equipment for Nonstandard Parts.
17. Other.

Total Nonrecurring Cost _____

Total Breakout Cost _____

Gross Savings (____% x est. life buy value) _____

Net Breakout Savings/(Loss)=
(Gross Savings-Total Breakout Cost) _____

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